ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCIV, No. 21 — PAPER — Thursday, May 26, 1932

Paper Mills In Canada and U. S. A. Re-Open

La Tuque Plant of Brown Corp. Starts Operations on Four-Day Schedule After Being Closed Down for Several Months—Port Alfred Mill of Consolidated Paper Corp., Which Was to Have Been Reopened Three Weeks Ago, Resumes Following Big Wood Pile Fire—Early Resumption of Activities Planned for Windsor Locks, Conn., Plant

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 23, 1932—The Brown Corporation's mill at La Tuque has been re-opened, after being closed for several months. For a time the mill will be on a four-day schedule each week and will give employment to about two hundred men. It is expected that in the course of a few months the mill will extend its operations to full time. The mill has a capacity of 9,500,000 lbs. of sulphate pulp per 24 hours.

The Port Alfred mill of the Consolidated Paper Corporation, the re-opening of which had been delayed for three weeks by the fire in its wood pile, started operations today. Of the 250,000 cords of pulpwood which were in the original pile, between 25,000 and 30,000 cords were saved, and with this and other wood being floated down the mill will be able to operate for sometime.

Spanish River Plant to Resume

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, May 23, 1932.—Word had been received of the reopening of the Espanola mill of the Spanish River plant of the Abitibi Power and Paper Company, and, although official statements have not been forthcoming, reports from Espanola state that work on the paper machines to prepare them for use commenced this week.

Some 2,000,000 cords of pulpwood are piled in the mill yard there and floating in the river, and it is claimed that two years' operation will be required to exhaust the supply. Failure of negotiations between the Abitibi company and the Canadian Pacific to transport the pulp to their Sault Ste. Marie mill is said to have influenced the paper company's decision to reopen.

The Espanola mill, located 41 miles west of Sudbury, has been idle for some two years. Iroquois Falls and the Sault Ste. Marie plants are being operated on part time. The Sturgeon Falls plant, like Espanola, has been shut down many months.

Paper Mill to Resume at Windsor Locks

According to press dispatches from Windsor Locks, Conn., preparations are being made for starting operations at the plant formerly operated by the Rushmore Paper Mills. The mill has been idle for the past year or two. According to reports, a gang of laborers is now at work over-hauling the machinery, rebuilding parts of the plant and getting it in shape generally for an early resumption of activities. No definite information is available now regarding variety of paper to be manufactured.

DePere to Build New Mill

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 23, 1932.—Erection of a one-machine mill by the DePere Paper Manufacturing Company, DePere, Wis., to replace one destroyed by fire sometime ago is reported. Twenty men employed by Sam Clark, contractor, are cleaning up the debris of the former building, working without pay with the understanding that their mill jobs will be restored soon.

Mr. Clark has plans and specifications for the mill in his hands, but no definite announcement has been made by the company management as to when rebuilding will start. Subscriptions to finance the mill have been obtained from local citizens and it is reported the situation is encouraging for early replacement of the mill. If present intentions mature, the mill will be ready to operate by August, reports indicate.

Valley Paper Co. Improvements

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 24, 1932.—The Valley Paper Company is installing a new 1,000 h.p. Smith-Kaplan water wheel to replace an old wheel that has been in service many years. The wheel is made by F. Morgan Smith, of York, Penn. A new generator of 700 kilowatts capacity is also being installed.

Boston Paper Trade Notes

Charles E. Demaree, of the Eastern Specialties Company, Holyoke, Mass., presented convincingly the possibilities of large volume business in roll papers of various kinds, for use in adding machines, die wiping, fire and police signals, new teletype machines, cash registers and other purposes, at a sales meeting of Carter Rice & Co. Corp.

P. Eugene Casey, chairman of the board of select men of Milford, Mass., has announced that a lease has been signed with him by the Natick Tag Company, to occupy the two factory plants in the rear of 51 Pearl street, Milford, for a period of five years.

Pennsylvania Paper Mills Curtail Production

Majority Keystone State Manufacturers Operating On Part Time Schedule—Demand for Various Grades of Fine Paper Only Moderately Active—Wrapping Paper Specialties Moving In Seasonal Volume—Paper Stock Comparatively Quiet

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 23, 1932—Though there is continued demand for seasonally active grades of paper, the general market is drifting. Specialists in seasonal requirements find a fair volume of orders accumulating for hot weather needs, with prices holding firmer than for the past few years, despite keen competition in restricted markets.

Paper manufacturers are curtailing schedules of operations according to the law of demand and supply, with the average mill on part time. A few of the large fine paper manufacturers catering to the prominent printers and publishers are on full time, but these mills are located in outlying sections rather than in the immediate Philadelphia territory.

Fine paper dealers report small lot buying by printers and consumers in the allied industries. Box makers are, like other paper consumers, finding business curtailed and are not making the usual seasonal purchases in the customary volume that might be expected at this time.

Wrapping papers and bags move in seasonal activity but the specialty field is the most gratifying of the coarse paper division and maintains dealers featuring these lines on broader scale of buying than any other section of the industry.

Paper stock continues dull, with little demand for rags except grades used by roofing manufacturers, now broadening operations after almost an entire winter of dullness, which necessitated, in some mills, a complete shutting down of plants. Those roofing manufacturers who were closed down last month are now operating on part time schedule, with orders slowly improving.

Enterprise Adds New Division

An entirely new division has been added to the Enterprise Paper Company interests in the industry through the formation of the Cellulose and Paper Converting Company, designed to manufacture shredded cellulose and papers in various colors for packing purposes. The new division is under direction of David Back, and is located in the Enterprise Building, 355 North 3rd street. The firm has installed a complete dyeing and shredding plant to take care of the new paper converting department and the conversion of cellulose. With the latest development in the textile industry of manufacture of textiles from cellulose the new concern is equipped to supply the textile trades with cellulose on spools for weaving into cloths for production of rugs, cloths for decorative purpose, and other types of woven materials, including those used in manufacture of ladies' hats. There is also provision for manufacture of hand made bags for odd shaped packages, such as lamps, umbrellas, and other merchandise in which a transparent bag would be of advantage. The Enterprise Paper Company developed the new division over a period of several months and has made considerable progress in the cellulose field. President Nathan D. Isen predicts great success for the Cellulose and Paper Converting Company in line with the other ventures into which the Enterprise company has engaged, including that of the Paramount Paper Products Company, which was organized a few years ago to make glassine and cellophane bags, and which is today one of the leading concerns of its kind in the Eastern paper trade.

Considine Elected Poor Richard Vice-President

N. A. Considine, head of the Paper House of Pennsylvania, was elected first vice-president of the Poor Richard Club, the advertising fraternity of the Quaker City. The office is the second consecutive one held in the past two years although Mr. Considine served in that capacity several years back, resigning at the time of his illness about three years ago to regain his health upon advice of his physician. He is one of the leaders in the direct mail advertising field of the organization and has been associated with national activities in that line of advertising. He is a former vice-president of the Philadelphia Paper Trade Association, and on the Fine Paper Committee of the National Paper Trade Association, where he has represented the Philadelphia association.

W. R. Cole Opens Roofing Supply Quarters

W. R. Cole, who for several years was linked with the Philadelphia industry as vice-president and treasurer of the C. S. Garrett & Son company, the oldest roofing and building paper supply house in this section, has taken the former Camden, N. J., quarters of the Garrett company at 1128-30 Kaign Avenue and will continue the business under his own name. A Philadelphia sales office will be continued at 30 South Marshall Street, in the building of John Simmons Sons, wholesale paper stock dealers, where Mr. Cole has been occupying an office since the severing of his association with the Garrett Corporation.

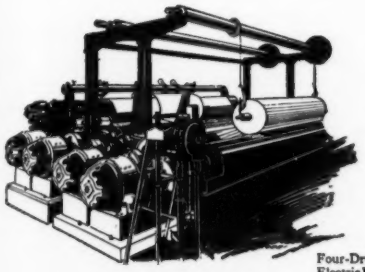
Raymond & McNutt Adds New Strathmore Papers

The newest bond papers of the Strathmore Paper Company have been stocked by Raymond & McNutt, Sheridan Building, with the latest portfolio on the Saxonet book papers for distribution to the trade and consumers. The new bond is known as the Highway and sells for 18 cents per pound. The new Strathmore Portfolio on Saxonet is a novel creation of samples in broadsides showing various uses of large sheets with a pocket for samples. It is one of the new series of advertising for the current year. The Saxonet book papers are also distributed by the Paper House of Pennsylvania, Charles Beck Paper Company and A. Hartung, Inc.

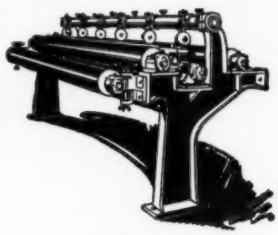
New Price Schedule for Strathmore Papers

Local distributors of the Strathmore Paper Company are now including the latest innovation in price schedule and packings of the West Springfield, Mass., manufacturers. Prices are now made on reams, cartons, cases and tons, on bond papers—the innovation being the quotations on cartons. Heretofore only reams, cases and tons were quoted, but the broad jump between reams and cases has been bridged by the intermediary of the carton, scheduled on size and weight and priced accordingly to meet present day buying needs of restricted quantities. Those who are quoting the new carton packings are Raymond & McNutt, A. Hartung, Inc., Paper House of Pennsylvania, and the Charles Beck Paper Company.

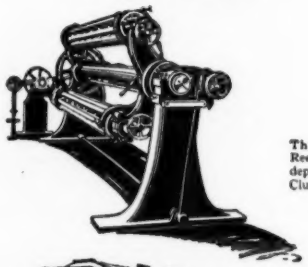
PAPER MAKING MACHINERY



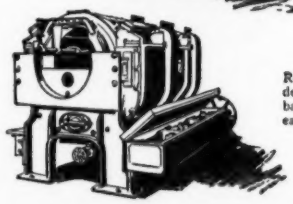
Four-Drum Winder with Electric Drive. Controls roll hardness automatically.



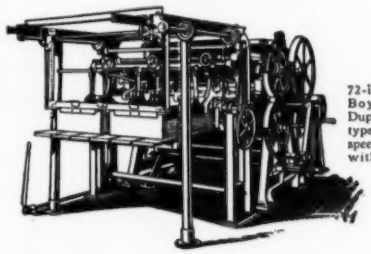
Ball Bearing Slitter Part. Quick-removable top and bottom blades give greater production with less waste.



Three-Drum Revolving Reel. Each drum has independent M&W Friction Clutch drive.



Rotary Screen, with divided diaphragms giving balanced movement and easy flow.



72-inch single Lay Boy and Cutter. Duplex and Diagonal types also made. High speeds may be used with wide cutters.

Fourdrinier Paper Machines
Quick changing wire features

Cylinder Paper Machines
for all grades of board

Bevel Gear Drive Stands
with Ball Bearings and M & W High Speed Friction Clutch

Brass Collapsible Winder Shafts
Non-sticking; quick-changing

"Criss Cross" Shower Pipes
High efficiency with low water consumption

Disc Washers, new type

Drum Winders
Two-Drum type for small rolls
Four-Drum type: electric or belt drive
Two-Drum and Four-Drum Supercalender Winders

High Density Bleaching Process
Wolf, Bellmer, Fletcher

Hoffman Couch Rolls
Superior to rubber rolls

Pumps: Stuff; Suction; Centrifugal

Reels
With 2, 3, 5 or 6 drums; Upright and Revolving types

Rotary Screens
Clean paper with minimum maintenance

Save-Alls
Economical, efficient closed system

Single and Duplex Cutters
High speeds—all widths—all kinds of paper

Single and Duplex Lay Boys
Increase cutter output; reduce finishing room costs

Slitter Parts
New ball bearing type, with removable Slitters, saves slitter tears

Wire and Felt Guides
Ball and plain bearing types for all speeds

Wood Suction Box Covers
Save wear of the Fourdrinier wires

M & W Friction Clutches and Speed Changes
Information and Bulletins on request

THE MOORE & WHITE COMPANY

Established 1885

PAPER MACHINE BUILDERS

15TH ST. & LEHIGH AVE., PHILADELPHIA, PA.

Wisconsin Mills Air Views On Tariff Bill

Representing Sulphite Pulp Plants Before Ways and Means Committee, J. M. Conway Supports Measuring Levying Import Duties to Compensate for Foreign Currency Depreciation—A. E. Cofrin Opposes Proposal On Behalf of Other Manufacturers

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 23, 1932.—J. M. Conway, president and general manager of the Hoberg Paper and Fibre Company, and Austin E. Cofrin, president and general manager of the Fort Howard Paper Company, both of Green Bay, Wis., have been representing Wisconsin mills in hearings before the Ways and Means Committee of the House of Representatives at Washington in expressions concerning passage of the Hawley-Beattie bill levying import duties on sulphite wood pulp to compensate for depreciation in foreign currencies. Mr. Conway represented 21 mills with a total annual capacity of 477,200 tons of sulphite pulp, in support of the bill and Mr. Cofrin four mills in opposition to it. The former list includes, besides the Hoberg Company, the Northern Paper Mills, Nekoosa-Edwards Paper Company, Dells Pulp and Paper Company, Consolidated Water Power and Paper Company, Wausau Paper Mills, Combined Locks Paper Company, Kimberly-Clark Corporation, Great Western Paper Company, Marinette and Menominee Paper Company, Falls Manufacturing Company, Flambeau Paper Company, Badger Paper Mills, Rhinelander Paper Company, Marathon Paper Mills Company, Wolf River Paper and Fibre Company, Little Rapids Pulp Company, Mosinee Paper Mills, Gilbert Paper Company, Valley Iron Works, Beloit Iron Works, Appleton Woolen Mills, and Thilmany Pulp and Paper Company. Those represented by Mr. Cofrin as opposed to the bill, besides the Fort Howard Paper Company, were: Union Bag and Paper Company, Wisconsin Tissue Mills, and Hummel & Downing.

J. M. Conway Requests Protection

In his brief submitted to the committee, Mr. Conway declared that unless adequate provisions are not promptly made to establish tariff duties to compensate for depreciation in foreign currencies, the units of industry represented by him will be presently forced to discontinue operations. "Such discontinuance will add substantially to unemployment," Mr. Conway said, "will completely eliminate markets for important raw materials, greatly aggravate the present desperate plight of the railroads, involve great waste incident to idle machinery and equipment, and generally attend by most serious economic consequences.

"The congress cannot escape responsibility for the consequences which will certainly take place if it refuses to make use of the remedy at hand to enable this important and vital branch of the paper industry to exist through the present trying and unusual period.

"At the present time," Mr. Conway added, "foreign producers are offering unbleached sulphite delivered in Wisconsin at $30 to $32 per ton and bleached sulphite at $45 to $48 per ton. The bare cost of manufacturing bleached sulphite in the state is $55 per ton and unbleached $43 per ton, despite the fact that wages and salaries, as well as every reducible overhead cost, has been cut as much as possible. It is obvious that if our mills can be underquoted on sulphite pulp from 20 to 30 per cent on their bare manufacturing costs, they must promptly cease operation or embrace financial ruin.

"There are in the paper industry, numerous so-called 'converting' mills manufacturing paper from wood pulp purchased from outside sources. These mills, while operating under highly protective tariffs on all their products—with the single exception of standard news print paper—have, with an utter disregard for the welfare of American labor, capital and the country's economic future, opposed any protection whatever for the American sulphite wood pulp industry.

"The economic fallacy of the policy of the converting mills is obvious when it is realized that coincident with the death knell of the domestic sulphite pulp industry, all domestic paper mills will be entirely dependent upon foreign sources of supply for sulphite pulp. If and when that times comes, the foreign producers will be able to dictate their own price."

A. E. Cofrin Opposes Proposal

Mr. Cofrin, in his testimony, charged that the proposal is a scheme to divert business from the converting mills to the self-contained mills, and insisted that the depression in the industry is due to general economic conditions and to overproduction on the Pacific coast. Consumption of paper and paper board was a million tons less in 1931 than in 1930, and Mr. Cofrin predicted that this year would show another decrease of a million tons.

The legislation would in no way increase the volume of business, Mr. Cofrin insisted, nor counteract fiercely competitive conditions in the industry. "It is not going to be any measure of relief to the industry that has been established and operated for a long period of years on raw materials that are free of duty," he said.

News of the Industry

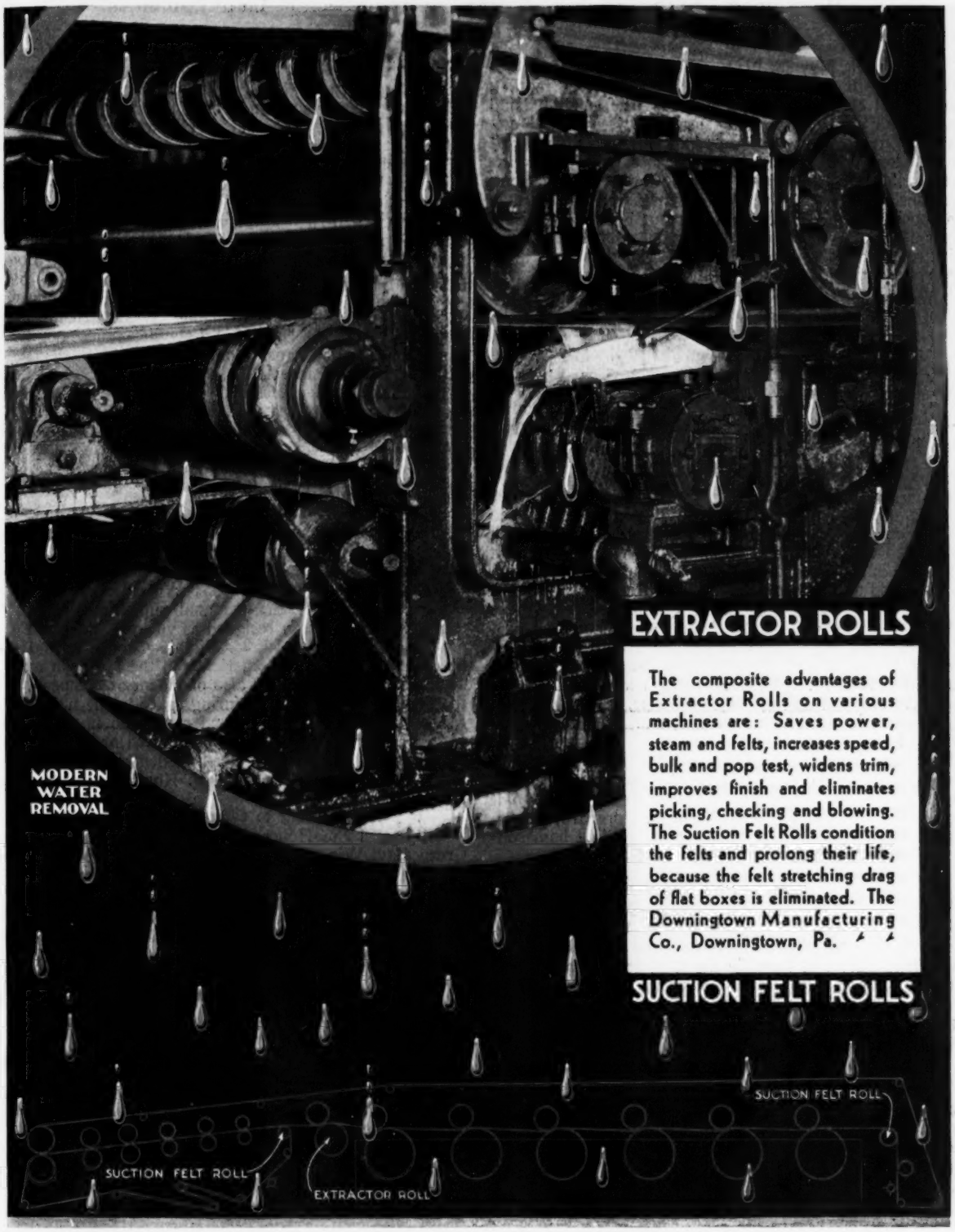
The first shipment of wood pulp to reach Wisconsin via the Great Lakes from overseas was docked at Milwaukee last week. It was a cargo of 1,100 tons shipped from Germany and trans-shipped at Montreal. The shipment was delivered to the Atlas Storage Company, Milwaukee. It is the first of twenty expected this season from Germany, Sweden and Finland. Last year eleven shipments were received, with a total of 14,000 tons.

William Nash, formerly associated with paper mills at Neenah and Menasha, Wis., has secured a patent on an invention for the manufacture of insulating paper from the stalks of milk weed. He is now in Kalamazoo, Mich., perfecting the process of manufacture of the new paper and supervising development of machinery for its production. Mr. Nash was one of the founders and head of the former Lakeside Paper Company, Neenah, Wis. Previous to that time he was Superintendent of the Gilbert Paper Company, Menasha, Wis.

The New Jersey Zinc Company, of Palmerton, Pa., has sent Howard M. Cyr to the Institute of Paper Chemistry at Lawrence College, Appleton, Wis., for a co-operative research project. He is testing some aspects of the application of zinc products to paper. Mr. Cyr is chief of the fundamental metallurgical section of the company.

A safety meeting sponsored by the Badger Paper Mills, Inc., Peshtigo, Wis., was given recently at a theater for the mill employees. E. A. Meyer, president and general manager, gave the opening address, relating facts in the safety record of the company in the last two years, of the benefits that could be derived from the practice of safety, and how safety measures are carried out to a maximum to safeguard employees.

DOWNINGTOWN



EXTRACTOR ROLLS

The composite advantages of Extractor Rolls on various machines are: Saves power, steam and felts, increases speed, bulk and pop test, widens trim, improves finish and eliminates picking, checking and blowing. The Suction Felt Rolls condition the felts and prolong their life, because the felt stretching drag of flat boxes is eliminated. The Downingtown Manufacturing Co., Downingtown, Pa.

SUCTION FELT ROLLS

Chicago Paper Market Conditions Irregular

Demand for Book and Cover Papers Light—Bond and Ledger Papers Moving In Narrow Groove—News Print Situation Unsatisfactory—Kraft Wrapping Paper Prices Well Maintained—Future Course of Sulphite Bond Section Uncertain

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 23, 1932.—There is little of an optimistic nature to report about the Chicago paper market. No marked change has been noted in the sulphite bond market and uncertainty as to future courses is still evident in conversation with local representatives. The kraft market continues to hold firm at prices, which although unfavorable gives a basis for business improvement. Previously suggested advertising plans based on the hope that business conditions would warrant heavy advertising appropriations do not seem to have materialized and news print representatives here still report a stagnant condition. Ground woods also remain unimproved.

The proximity of the so-called summer quietness has added to the slowness of the board market, say reports, although selling efforts are being redoubled in the hope of early improvement. Book and cover papers remain quiet, production going on at a curtailed basis in keeping with the slow demand. Business is quoted as being hard to get and competition decidedly keen in these and other lines. Bonds and ledgers are moving in a narrow groove, with little activity expected in the near future.

Paper Board Manufacturers Meet

H. S. Adler, secretary of the Paperboard Industries Association, has reported that the May meetings of the association, held at French Lick Springs, Indiana, which terminated late this week, were fairly well attended and that some important projects of the organization were further speeded toward completion. Of particular importance was the conference of container group sales executives held on May 18, with J. M. Arndt, chairman, presiding. Distribution problems confronting this particular branch of the industry and the possibility of developing and merchandising new uses for container products to the fullest extent were stressed during the conference, a comparatively new feature in the association program. Mr. Adler also indicated that the general meeting, with members of the folding box, container and paper board groups, in joint session, was productive of some discussions of genuine importance to the industry. President Henry D. Schmidt presided at this session, while John L. Borchard, M. M. Madson and F. C. Ash presided at the folding box, container and paper board meetings respectively.

Chicago Paper Association's Activities

The regular meeting of the Chicago Paper Association will be held at the Bismarck Hotel, on Tuesday evening, May 24. At that time members of the group will continue their efforts to improve the local coarse paper market and to urge business methods that will remove any efforts of "profitless prosperity." It is reported that the Association will also make arrangements for a special event to be held on June 6.

Paper Salesmen Open Golf Season

The Middle West Division of the Salesmen's Association of the Paper Industry pried open the 1932 golf season with a successful tournament held at Wilmette Country Club on Friday, May 20. An exceptionally large turnout enjoyed the luncheon and the dinner in the evening. A few got in some practice rounds prior to the afternoon prize winning events. In reporting the opening event it is cheering to note that, despite the rigors of 1932, the salesmen can still sing and enjoy themselves as much, if not more than they ever did. Prize winners for the May 20 event were reported by Courtney Reeves, chairman of the golf committee, as follows: Low net, handicap 17 or under, Warren Moore, Brown Company, 83-13-70; low net, handicap 18 and over, W. J. Opfer, Midland Paper Company, 95-20-75; Low net first 9, Bert Fisher, Bergstrom Paper Company, 42-6-36; low net second 9, Elliott Fulton, W. E. Roe Company, 49-14-35; Blind Bogey, Henry Law, Dwight Brothers; least number of putts, Harry Johnson, 29; low putt foresome, W. B. Moore, 33, Jack Hillyer, Whitaker, 31, John Wesley, Rhinelander Paper, 36, and Ed Dahl, 33; Low net foursome, E. D. Buchanan, Moser Paper Company; Henry Law; A. L. Gilman, Allied Paper Mills, and Courtney H. Reeves, Allied Paper Mills—total 306. The practice of awarding low net prizes on the two different handicaps—the one 17 and under, and the other 18 to 30—proved popular, both to the dub variety and the shooter who always is wary of the high handicap and the eccentricities of the golfer who may get "hot."

New Fiber Can Plant Opened

The Sefton National Fibre Can Company, with headquarters in St. Louis, has recently opened up a new branch factory out in the Clearing Industrial District, Chicago, the address being 6551 West 65th street. The plant will be under the personal supervision of C. T. Simpson, who recently resigned as vice-president and general manager of the W. C. Ritchie Company, and who has had many years of experience in the fiber can making business. Mr. Simpson is also president of Simpson, Inc., the firm to occupy manufacturing space in the new branch factory making specially wound cans with fiber or metal ends. Officers of Simpson, Incorporated are C. T. Simpson, president; W. Steuer, vice-president; J. S. Cox, treasurer; J. Bocan, secretary and N. Korfst, assistant secretary.

Hoberg to Change Quarters

On June 1 the Hoberg Paper and Fibre Company, of Green Bay, Wis., will move its Chicago offices from the Wrigley Building to the fifteenth floor of the new Merchandise Mart. The new location will have many added advantages, including a large display room which will permit a more extensive merchandising of the well known Evergreen products. A. H. Beinhart is the Chicago manager of the Wisconsin organization.

Prairie State Paper Mill Re-Opened

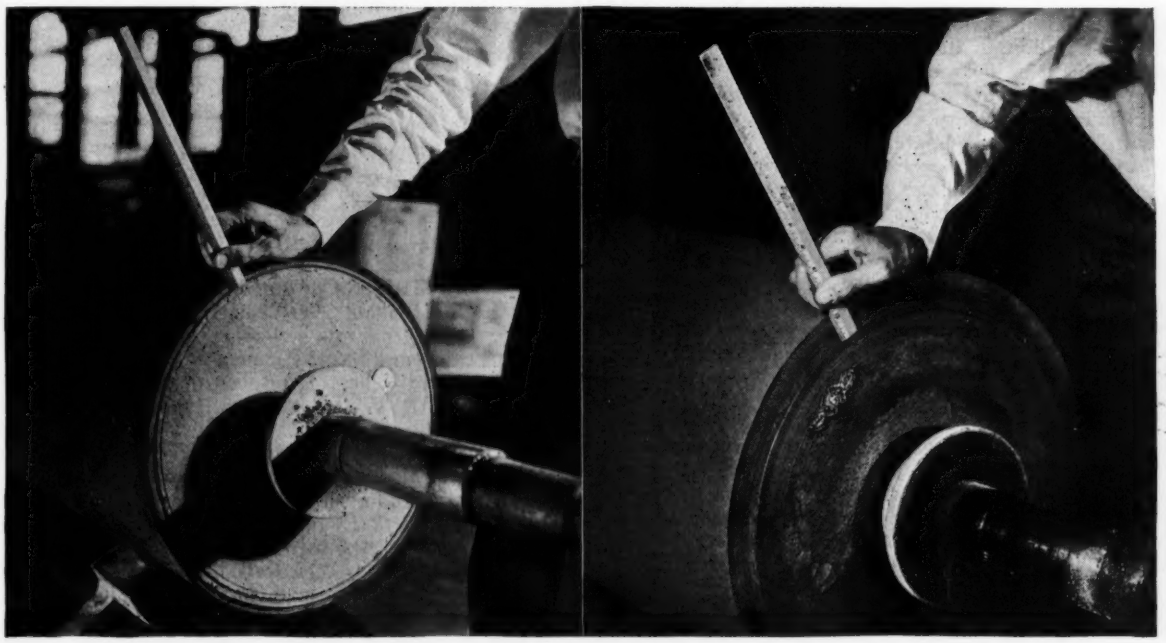
The Illinois waterway and the Great Lakes waterway are of considerable advantage to the new Prairie State Paper Mills Company, of Joliet, according to reports which indicate that the mills are receiving quantities of West Coast pulp by way of the waterway, and Swedish pulp through the Great Lakes. Krafts, mill wrappers and other products are made by the new company which has re-opened the mill formerly operated by the concern known as the Eagle Paper Company.

Hard Rubber is Dead Rubber

WHY *buy it?*

HARD RUBBER BASE ROLL—*which has been used until it no longer has sufficient cushion. The hard rubber is dead rubber; valueless as cushion. Since this dead base is about ¼" thick, it represents a 25% waste on a 1" cover.*

A GOODRICH VULCALOCK ROLL. *The cover is soft rubber right down to the metal core. No hard rubber; no waste. Specify Vulcalock rolls, and you get one hundred cents' worth of live cushion for every dollar spent.*



Study the rulers on these rolls.

The roll at the right is a Goodrich Vulcalock; no hard rubber here. The cover is soft rubber . . . 100% cushion . . . clear to the core.

The Vulcalock roll is the *only* roll that does not have a hard rubber base; the *only* roll that gives you one hundred cents on the dollar in soft rubber . . . live cushioning.

The roll at the left, now pretty well worn out, is one of the old-fashioned type. It has, you will note, a hard rubber base that measures a good ¼" of its original 1" cover.

Put it in terms of dollars and cents. If you buy a hard rubber base roll, so far as cushioning is concerned, *you get only seventy-five cents on the dollar.* One quarter of the roll, twenty-five cents on every dollar, is hard rubber . . . dead rubber . . . waste cushion.

THE HARD RUBBER base roll is a poor investment when new. And it wastes money every time it's re-covered. The metal core has to be re-rough-threaded. Removing metal from the core, you've got to add rubber to the cover to build the roll up to the correct outside diameter. At each re-covering you pay for a thicker covering of rubber.

Makers of hard rubber base rolls in many cases have to change the formula for the soft rubber cover so that cover and hard rubber base can be vulcanized at the same time. The soft rubber cover on a Vulcalock roll can be compounded to meet *your* specific requirements.

. . .

Literature on the Goodrich Vulcalock roll will be sent on request; quotations on specific jobs are submitted without obligation. Address The B. F. Goodrich Rubber Company, (Est. 1870) Akron, Ohio.

B. F. Goodrich

VULCALOCK PAPER MILL ROLLS

TAPPI Delaware Valley Section Meets

The sixth regular monthly meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry was held at the Engineers Club, 1317 Spruce Street, Philadelphia, May 20, 1932, with about 35 members and friends present.

After the usual friendly dinner, William R. Maull, chairman, called the meeting to order and announced the appointment of a nominating committee to present nominees for officers for the 1932-33 season. Those appointed were : E. J. Albert, Thwing Instrument Company, chairman; J. C. Harper, West Jersey Paper Company; Jacob Edge, Downingtown Manufacturing Company; A. J. Leuttgen, P. H. Glatfelter Company.

Mr. Maull then introduced the first speaker of the evening, Charles A. Rivise, Philadelphia patent attorney, who spoke on his profession, "Patents." Mr. Rivise presented his collection of the world's most humorous, if practical, patents, pointing out the field, possibilities and the great lack of backwardness shown by inventors. He also described the purpose, importance and method of procuring a patent, the cycle by which patents became trademarks and purchase names. The principles of patent law were discussed and the requirements of an invention or process to become a patent. Concrete examples of test cases, showing the difference in technical understanding of the Courts for inventions were cited. Precautions for protecting patents were described as important, and that the inventor should search patents and research data, keep all records and drawings pertaining to the development of his idea, no matter how crude or preliminary, and that broad enough claims should be made to anticipate violations of his idea.

Mr. Maull introduced Sidney Meyers of the Merritt Engineering and Sales Corporation, as the next speaker. Mr. Meyers, well known expert on paper mill consistency regulation, spoke of this necessity as a primary requisite of paper mill quality production. The principal method employed is the use of the drag or friction of the stock upon suitable regulatory equipment to control and indicate. Where regulation is concerned good, agitation may provoke a condition of poor or irregular consistency and the points of application should be where each mill condition warrants and what is required. Prebeating regulation (slush stock) has become a large field of present consideration and numerous applications are at present in successful operation.

Discussion

In the discussion of Mr. Meyers' paper the following questions were asked and answered:

QUESTION: How much variation in consistency will effect weights on a board machine?

ANSWER: Consistencies varying 0.1 per cent will cause weight variations of 1 per cent.

Mr. Leuttgen asked the effect of temperature or freeness on regulators?

ANSWER: Theoretically there should be effect but practically it is hardly measurable.

Mr. Ramsey of Jessup and Moore Paper Company asked the range of equipment.

ANSWER: From 2½ to 7 per cent without difficulty.

Mr. Maull asked if range in weights or extremities in changing orders makes operation difficult?

ANSWER: No. There are mills running unusual ranges and returnings to grade adjustments may be readily made.

Mr. Wickham of MacAndrews and Forbes Company asked what can be recommended for machines where board is made up of several grades of stock in one sheet?

ANSWER: Must look for greatest gain for least expenditure and in such a case installation would be in the filler stock.

Mr. Wickham asked if, theoretically, a sheet of 74#/M square feet specification is to be run, how much deviation might be expected with regulation.

ANSWER: From 72 to 76 pounds or 4 pound range.

Mr. Maull announced the June meeting after the election of officers would be given over to jollification and social recreation, and E. J. Albert, Chairman of Committee of Arrangements, spoke of the work of the committee for this final meeting of the year.

A rising vote of thanks to speakers of the evening preceded adjournment by Mr. Maull.

Those Present at the Meeting

Those present at the meeting were: E. J. Albert, Thwing Instrument Company; B. S. Browning, Scott Paper Company; F. W. Brainerd, Scott Paper Company; Lloyd Carpenter, until recently of Container Corporation of America; O. C. Cordes, Westinghouse Electric and Manufacturing Company; H. P. Cannon, Container Corporation of America; William Evans, Dill & Collins Company; E. N. Glauner, Downingtown Manufacturing Company; E. S. Hinman, P. H. Glatfelter Company; S. M. Hesser, Hinde & Dausch Paper Company; L. Justice, Container Corporation of America; J. Rissel Kessler, unattached; J. I. Kelley, Hires, Castner & Harris; C. J. Kern, Moore & White Company; Paul Koenig, P. H. Glatfelter Company; G. E. Landt, Continental-Diamond Fibre Company; A. J. Leuttgen, P. H. Glatfelter Company; R. G. Macdonald, Secretary of TAPPI; W. R. Maull, Dill & Collins Company; S. E. Meyers, until recently with Merritt Engineering & Sales Corporation; J. G. Ramsey, Jessup & Moore Paper Company; C. W. Rivise, Philadelphia; S. D. Reynolds, Container Corporation of America; J. Roslund, Moore & White Company; E. T. Street, Downingtown Manufacturing Company; C. A. Shubert, Dill & Collins Company; R. W. Shaffer, MacAndrews & Forbes Company; R. H. Stagemyer, Penn Fibreboard Corporation; B. M. Thomas, Container Corporation of America; E. N. Wennberg, Continental Diamond Fibre Company; A. W. Wickham, MacAndrews & Forbes Company.

Goes With A. L. Adams Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., May 23, 1932—Napoleon Rigabar, who recently resigned as superintendent of the National Paper Products Company, has taken a similar position with the A. L. Adams Paper Company of Baldwinsville, Mass. He severed connections here a few weeks ago after serving a lengthy period. Previous to coming here he was at Steubenville, Ohio, and later served in an executive capacity with mills at Niagara Falls and Lancaster, Pa. Following his resignation at the local plant he was presented with a gold wrist watch by the employees.

He was succeeded here by Elmer Emigh, a veteran paper mill man, who has been connected with the industry for many years. He was formerly connected with the Crown-Zellerbach Company.

Illustration above features a Waldron "Centennial" Embosser

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Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

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DIRECTORY INFORMATION WANTED

Questionnaires requesting information for the new edition of Lockwood's Directory of the Paper and Allied Trades, to be issued in the fall, are now being sent out. The general questionnaire as well as the questionnaire for the new machinery section, printed for the first time in Lockwood's Directory last year, were sent out during the past few days and the questionnaire for the pulp and paper mills section will be mailed June 1.

As a rule the cooperation furnished the publishers, especially in the mill section of the Directory by the firms and individuals, is all that could be desired, but unfortunately each year there is considerable evidence on the part of some to whom the questionnaires are sent of carelessness, either in the shape of delays or not intelligently or not accurately supplying the information requested. This is to be regretted, because while the publishers do the best they can under the circumstances, it must be remembered that they are not mind readers. In order to insure absolutely accurate entries in the Directory the publishers must have the right kind of cooperation from all to whom the questionnaires are sent.

New data for all sections of the book are earnestly solicited. This information is collected throughout the year from the news columns of the PAPER TRADE JOURNAL and other sources, but new concerns, in order to make certain that they be correctly listed in the new edition of the Directory, should send in the information regarding themselves as soon as possible.

Considerable annoyance is caused each year, in spite of an endeavor by the publishers to make the instructions perfectly plain, by persons seeking to be listed in sections in which they do not belong. This is especially true of the classified section, the specialties section and the watermarks and brands section. The classified section is designed to recapitulate or summarize for convenient reference the varieties of paper mentioned in the mill reports, the specialties section is intended for manufacturers or converters of paper specialties and the watermarks and brands section is intended only for owners and not simply for distributors or sellers of watermarked and branded paper. By including others in these sections inaccurate information would be given and the value of these sections would obviously be lessened. The publishers adhere strictly to the rules governing the various sections not simply for the sake of being arbitrary, but in order to make the Directory as valuable as possible to the greatest number of subscribers.

All of those who receive questionnaires are urged to fill them out carefully and return them promptly. New concerns in the paper and allied lines also are requested to send in the information regarding themselves as early as possible to the Lockwood Trade Journal Company, 10 East 39th street, New York.

This will help the publishers and will help to insure accurate and satisfactory listings for the concerns cooperating in this manner.

NEW YORK WOOD WASTE SURVEY

Thousands of tons of wasted wood in New York State are available for conversion into scores of useful products, according to the National Committee on Wood Utilization of the Department of Commerce, whose field work on the wood waste problems of that state has just been completed.

Under the chairmanship of George W. Sisson, Jr., president of the Racquette River Paper Company, of Potsdam, N. Y., representing the American Pulp and Paper Association, a committee, composed of representatives of leading forest industries in New York State, the New York State Department of Conservation, the New York College of Forestry, and the Empire State Forest Products Association, has cooperated with the National Committee on Wood Utilization in taking stock of the available wood waste resources of the state.

More than 3,000 sawmills and woodworking plants in New York have made returns, and the results are now being tabulated to show the kind, quantity and location of wood material available for conversion but now going to waste.

A report on economical methods of conversion of this material is soon going to press. Practical methods of reducing wood waste to a minimum also will be discussed in the report.

"Close utilization of our timber resources," says Chairman Sisson, "is the keynote of the future of reforestation in New York State. This accurate census of available wood waste material will lead to a more economical use of the timber and, at the same time, will put people to work."

The Committee points out that there is a constant demand for supplies of wood waste, and it is the purpose of the state surveys, three of which already have been completed in Maryland, North Carolina and Virginia, to

make all information pertaining to these sources readily available.

Members of the New York survey committee, besides Mr. Sisson, include C. P. Setter, Cattaraugus, Ralph Taylor, Jamestown; H. S. Bennion, New York City; W. F. Bancker, New York City, and A. C. Goodyear, New York City.

An advisory committee, also cooperating in the study, consists of the following:—William G. Howard, Albany; George A. Lawyer, Buffalo; George N. Ostrander, Saratoga Springs; N. C. Brown, Syracuse; A. B. Recknagel, Ithaca, and Peter G. Ten Eyck, Albany.

Wage Dispute at Hudson Falls

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., May 23, 1932—A dispute relative to a new wage and working agreement has arisen between officials of the Union Bag and Paper Company and labor unions and a serious situation may result. Following a conference early this week at which officials of the company refused to recognize the unions a meeting of the workers was held at which it was voted to call a strike. Later on, however, it was decided to postpone such action until the results of the conference on Saturday are made known.

It was announced by John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers that no trouble had been anticipated until the annual conference when the controversy developed from a statement by John T. Gamble, superintendent, that he would not deal with the unions in a wage agreement. He said it was the intention of the company to institute the open shop system which the unions could not consider. He also declared that the unions were willing to accept a reduction in wages similar to revisions made by competitive concerns, averaging about ten per cent.

A prominent official of the International Brotherhood of Papermakers stated that it would be a death blow to accept the proposal of the company and that members of the unions could not accept it if they wish to live. It was also said that everything has been done to avert a strike but under the present proposals the workers would not know from day to day just what their wages would amount to.

A statement issued to the public by the unions revealed that the company desires to inaugurate the open shop and henceforth refuse to deal or sign any further agreements. If the proposed reduction in wages is accepted the company will not guarantee such rates for any specified length of time, it reads. The unions feel that they will be compelled to strike as the reductions sought are far too great while it is felt that the open shop will in time destroy all standards and economic freedom.

Boston Paper Trade to Meet

BOSTON, Mass., May 23, 1932—The annual spring meeting of the Boston Paper Trade Association will be held at the Charles River Country Club, Newton, Mass., on Monday, June 6. A novel program has been arranged by the executive committee, with prizes approximating $200 in value for the various sports events. Those contemplating attending this meeting and desiring to enter the Golf Tournament, should communicate with W. F. Stetson, Jr., care Storrs & Bement Company, 282 Congress street, Boston, Mass.

TAPPI Notes

George I. Cooper, formerly chemist of the Federal Paper Board Company, Bogota, N. J. is now in charge of the Gummed Paper Manufacturing Division of the Eureka Special Printing Company, Scranton, Pa.

The summer meeting of the Technical Section of the Canadian Pulp and Paper Association will be held at Ste. Catherines, Ontario, June 22, 23, and 24, 1932.

A. A. Richards and J. C. Wood of Edward Lloyd Ltd., Sittingbourne, Scotland, are visiting in the United States.

Gosta Hall, technical adviser to the Swedish Pulp Company sailed from New York for Sweden, last week.

Maurice Connor has resigned his position as chemical engineer for the Electro Bleaching Gas Company and is temporarily located at the Chemists Club, 52 East 41st street, New York.

A patent exposition is in progress at the Grand Central Palace in New York.

Please do not forget to notify the Secretary of TAPPI, 370 Lexington Avenue, New York, when you hear of a position open for an engineer, chemist, superintendent or mill manager.

The University of Maine will again conduct a summer school for chemistry and pulp and papermaking from July 5 to August 12, at Orono, Maine. Tuition for the session of six weeks will be $41. Information relative to the course can be obtained from Dr. C. A. Brautlecht, Chemistry and Chemical Engineering Department, University of Maine, Orono, Maine.

J. H. Horne & Sons Reorganize

The recent and sudden death of H. Franklin Horne, who was president and majority stockholder of J. H. Horne & Sons Company, Lawrence, Mass., necessitated reorganization of the company. Such reorganization has now been satisfactorily effected, with the election of the following directors and officers:

Byron R. Cleveland is the new president. Mr. Cleveland is grandson of the late Byron F. Horne, one of the original founders of the company, and for many years its president; and a nephew of the late John E. Horne, another of the original founders of the company, and until his death its treasurer. Mr. Cleveland was associated with the company for eleven years.

Walter Abbe is the new treasurer. Mr. Abbe is president of The Smith & Winchester Manufacturing Company of South Windham, Conn., with which company Mr. Cleveland is also associated.

J. N. Davis is vice president and resident manager. Mr. Davis has been associated with the company for more than twenty years, and prior to that time was general sales agent for a competitive company in the South.

J. H. Horne & Sons Company was established in 1864 and incorporated in 1888, and has always specialized in the design and manufacture of paper mill machinery. The company's machinery has been shipped to almost all parts of the civilized world, and the company enjoys an enviable reputation for the excellence of its products.

Alexandria Mill Not Sold

[FROM OUR REGULAR CORRESPONDENT]

ALEXANDRIA, Ind., May 23, 1932—E. W. Yule, local representative of the Alexandria Paper Company stated last week that reports circulated in the city in regard to the sale of the factory building is untrue. It was reported that the plant had been sold to Ohio parties and a special brand of paper would be manufactured here.

THOMAS EDISON ONCE SAID—
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WEDNESDAY — JUNE 1st — GOLF

THURSDAY — JUNE 2nd, morning, afternoon and evening: Papers and Live discussions on Mill Problems, Divisional Group Dinners.

FRIDAY — JUNE 3rd, morning and afternoon: Papers, Discussions and Mill Visits.

SATURDAY — JUNE 4th, morning. Business meeting, Papers and Question Box.

Address correspondence to
FRED J. ROONEY
General Chairman, Box 357, Lockport, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Analysis of Casein*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

Commercial caseins are often designated according to the method of preparation, as acid casein, rennet casein, etc. Acid caseins are again subdivided according to the acid used, as sulphuric, muriatic, lactic, etc. This designation was formerly of some value, as the older methods of preparation gave products of different characteristics according to the acid used. With modern methods this is not true and caseins of practically the same properties are now produced with such different acids as lactic and muriatic. The name of a casein, except for the distinction between acid and rennet caseins, therefore gives no hint as to its properties.

Casein is a material for which there is at present no adequate system of testing which can be applied by both producer and consumer. This is due to the fact that there is a very wide gap between the information supplied by strictly chemical tests and that necessary to tell how the casein will work in practice. This gap can be bridged only by empirical tests made to duplicate, as nearly as possible, the conditions of actual use, and such tests cannot readily be standardized. Both types of tests are here described.

Sampling

The usual methods of sampling dried granular material in packages shall be followed, taking equal portions from 2 to 10 per cent of the packages according to the size of the shipment. The composite sample shall be thoroughly mixed, quartered down to suitable size and placed in moisture-proof containers.

Appearance

The sample should be observed for color, odor, cleanliness and fineness of grinding. There are no exact standards for the first three properties and only experience can enable one to tell whether a sample is up to the desired quality. In general, however, a good casein should be of a creamy yellow color, free from an excessive amount of dark orange-colored particles and visible dirt and of a mild, characteristic odor, neither moldy, musty nor rancid. The fineness of grinding may be determined by screening on standard screens.

Chemical Tests

MOISTURE: For accurate work a sample of 3 to 5 grams shall be dried for 5 hours at 98 deg. C. in a vacuum oven. For most work it is sufficiently accurate to dry the sample to constant weight at a temperature of 100 to 105 deg. C. in an ordinary oven. All weighings shall be made in a glass-stoppered weighing bottle, as casein takes on moisture rapidly when dry.

FAT: A representative portion of the sample shall be very finely ground and then 5 grams extracted with ether in an extractor of the Soxhlet type. The extraction shall run for at least 16 hours or over night, collecting the extract in a weighed flask. After evaporating off the solvent, the extracted fat shall be dried to constant weight at not over 100 deg C.

Routine Method: A convenient method of moderate accuracy which utilizes the Babcock milk tester is as follows:

Soak 2 grams of the casein in 6 cc. of water in a small beaker and when all particles are thoroughly saturated add, with constant stirring, 9 cc. of conc. H_2SO_4. Pour the solution into a Babcock milk test bottle (18 gram) and wash out the beaker with a mixture of 5 cc. of water and 5 cc. of conc. H_2SO_4, adding the washings to the bottle. Fill to the base of the neck with dilute H_2SO_4 (5:4) and whirl in a centrifuge for 5 minutes. Then add sufficient hot dilute acid to bring the fat layer completely within the graduated portion of the neck and whirl for 2 minutes. While still hot read the amount of fat on the graduated neck. As the bottle is designed for a charge of 18 grams, this reading multiplied by 9 will give the percentage of fat in the casein.

ASH: Weigh about 2 grams of casein into a large porcelain crucible and ignite over a low flame until complete carbonization has taken place, being careful that the contents of the crucible do not burst into flame. Then ignite over a burner or in a muffle until the ash is white or very light gray, cool in a desiccator and weigh. The final ignition should be at as low a temperature as is consistent with obtaining a white ash. The procedure should not be carried out in platinum as this metal is attacked by the phosphorus in the casein.

If oxygen is available the operations may be carried out in a Rose crucible and the final ignition assisted by a stream of oxygen.

ALKALI: Add about 5 cc. of distilled water to the ash and warm. Then add a drop or two of phenolphthalein indicator and if the ash is alkaline titrate it with 0.1 N HCl until colorless; then add 2 drops of methyl orange and complete the titration to a pink color. Calculate the total titration to Na_2O.

Calculation: 1 cc. 0.1 N HCl = 0.0031 gram Na_2O.

Note: The ash of a pure casein should not be alkaline to phenolphthalein or to methyl orange. If it shows alkalinity, test it qualitatively for borax, sodium carbonate and sodium phosphate.

STARCH: Warm a portion of the sample with water. Cool and

TAPPI SECTION, PAGE 268

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Send criticisms and suggestions to R. C. Griffin, chairman, 30 Charles River Road, Cambridge, Mass.

add a few drops of very dilute iodine solution. A blue color indicates starch.

Note: If added alkali has been found in the casein, make the solution slightly acid before adding the iodine solution.

TOTAL ACIDITY: Weigh 20 grams of casein into a beaker and add 100 cc. of water. After soaking for a short time titrate with 1.0 N or 0.5 N NaOH, running in a little at a time and warming on the steam bath after each addition until the end-point is reached. Litmus paper, moistened and dipped into the hot solution shall be used as an indicator and the end-point shall be considered as reached when blue litmus is turned very slightly red and red litmus is turned very slightly blue. Report the results as percentage of NaOH required to neutralize the casein.

Calculation: 1 cc. 1.0 N alkali = 0.04 gram NaOH.

SOLUBLE ACIDITY: Soak 20 grams of the casein in 200 cc. of water at room temperature for at least 1 hour, filter and titrate 50 cc. of the filtrate with 0.1 N NaOH, using methyl orange indicator. Report the acidity as the number of cc. of 0.1 N alkali required to neutralize 1 gram.

NITROGEN: The nitrogen is not usually determined in casein except for some special purpose. When it is desired the usual Kjeldahl method should be used.

Note: Authorities differ as to the factor for converting N to casein and it is known to differ with different lots of casein. According to Browne, N × 6.38 will give the percentage of pure casein; while Höpfner and Burmeister state that N × 6.61 will give the fat-, ash-, and moisture-free casein present. To convert to commercial, air-dry casein as received, the factors have been found to vary from 7.69 to 9.10 for different samples. It is suggested that the factor 8.00 be arbitrarily selected and assumed to apply in all cases where it is desired to convert nitrogen to commercial air-dry casein.

Empirical Tests

INSOLUBLE MATTER: Weigh 100 grams of casein into a liter beaker, add 300 cc. of water and stir thoroughly. After about 10 minutes add a solution of 15 grams of Na_2CO_3 (soda ash) in 100 cc. of water and stir until thickening takes place. Put the beaker in a water bath at a temperature of about 60 deg. C. and let it stand, with occasional stirring, for 3 hours. At the end of this period add 400 cc. of boiling water and stir thoroughly for about 5 minutes. Pour the solution upon a small, brass, 200-mesh sieve which has been weighed to 0.1 mg. and soaked in boiling water. Wash the sieve and residue thoroughly with boiling water, then dry and weigh. Report the percentage of insoluble matter.

SOLUBILITY (CUTTING TEST): Weigh 50 grams of the ground casein into a 350 cc. beaker and add 7.5 grams of powdered borax. Add 250 cc. of water at a temperature of 70 deg. C. and heat at this temperature on the water bath for 15 minutes, stirring constantly. High-grade caseins will dissolve completely, while inferior samples will show more or less insoluble material of various kinds. (It should be noted that a casein may not be completely soluble by this test, yet be entirely satisfactory for coating purposes when more alkali is used.)

VISCOSITY: Viscosity tests are of considerable help in determining whether a casein is satisfactory for coating purposes, but it is nearly impossible to standardize the methods employed. In the first place, there is no fixed relationship between the viscosity of a casein solution and that of a coating mixture made from it, and as the coating mixture is what interests the coater it is quite useless to test the casein solution only. In the second place, the viscosity of a coating mixture varies with the kind of clay, the kind of satin white, the proportion of the two in the mixture and the kind and amount of solvents used in dissolving the casein. Unless standard grades of clay and satin white can be distributed for testing purposes the best that can be done is for each user to work up a test which suits the conditions in his own particular plant.

CLAY-CARRYING STRENGTH: In the case of casein used in the coating of paper strength may be considered to be the number of parts of clay which one part of casein will hold on the surface of the paper with just sufficient strength so that the coating will not be removed during the printing of the paper. (Different mineral matters require different amounts of casein, but for testing purposes clay has been generally adopted.) The following method is recommended:

Soak 50 grams of casein in 190 cc. of a solution containing 7 grams of Na_2CO_3 and warm on the steam bath until solution is complete. Add sufficient water so that the total weight of solution is 250 grams and 1 gram of casein is present in 5 grams of solution. It makes practically no difference what alkali is used as a solvent provided the solution is complete and not over-heated for any length of time.

Into a heavy porcelain or enamel-ware cup weigh 100 grams of coating clay which has been dried at 100 deg. C. or higher, and to this add 70 cc. of water. When it has soaked for a short time, stir until free from lumps. This can be done very conveniently by means of a copper spatula which is bent nearly at right angles on the end to form a foot with which lumps may be pressed out and broken up. Balance this cup with its contents of clay, water and spatula on a balance which is sensitive to 0.1 gram with a load of 500 grams, and then add 30 grams of the hot casein solution. Mix thoroughly and spread a little of the mixture thinly and evenly on a sheet of paper similar to that used for coating purposes. Replace the cup on the balance, add 5 grams of casein solution, mix and again spread a sheet. Repeat this process until it is certain that enough casein has been added to give a coating of sufficient strength. The sheets will then represent increments of 1 gram of casein, the first being 6 grams per 100 of clay, the second 7 grams, etc. Mark the sheets 6, 7, 8, etc. If care is taken not to spill or waste any of the coating mixture during the test, the amount used for making each sheet will not introduce any appreciable error.

The coated sheets should be dried in the air at room temperature until fully dry and tested with sealing wax for strength. For this test heat a stick of sealing wax on one end until it almost drips and press the hot end firmly down on the surface of the coated paper. When it is fully cold and hard pull it off with a quick, vertical pull. When doing this the paper must be held firmly; this may be done by using a large washer which will fit over the wax and hold the paper down entirely around it. If insufficient casein is used the coating will pull off without taking any fiber with it, while if excess casein is used the surface of the wax will be entirely covered with coating to which fibers are adhering. There is generally an intermediate "critical point" when the central area of the wax shows fibers and the edges coating only. This would be considered just on the line between weak and strong.

The test should be reported as the number of pounds of clay held by one pound of casein in the coating which gives the critical point. This figure is obtained by dividing 100 by the number of grams of casein required to give the critical point.

Note: The results obtained by this test are influenced by the kind of clay used as well as the kind of paper to which the coating mixture is applied. Of still greater importance is the thickness of coating applied and it has been proved that for accurate work it is necessary to keep the weight per ream of coating constant within 1 pound on either side of the desired amount. This cannot be accomplished by spreading the coating with a brush or even by means of a hand scraper, and the only satisfactory solution is to construct a machine which will apply a very uniform and controllable amount.

Calibration of Volumetric Glassware and Analytical Weights*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

The accuracy of quantitative volumetric analyses depends fundamentally on the accuracy of the volumetric glassware used and in both volumetric and gravimetric analyses accurate analytical weights are necessary. The standard liter is the volume of 1 kilogram of pure water at 4 deg. C. weighed in vacuum. As it is not convenient to work at this temperature, however, the generally accepted standard temperature for the use of volumetric glassware is 20 deg. C. The true volume of a glass vessel at 20 deg. C. may be calculated from the weight, in air with brass weights, of the water which it contains at 20 deg. C.

Volumetric Ware

The following procedures shall be used for calibrating volumetric ware:

(1) FLASKS: Clean the flask with chromic acid cleaning solution, wash with distilled water, dry and weigh at room temperature. Then fill to the mark with water and weigh again. Take the temperature of the water and calculate the corresponding volume at 20 deg. C. from Table 1. With flasks of 200-cc. capacity or smaller the weights shall be recorded to the second decimal place; with large flasks the first decimal place is sufficient.

TABLE I
CORRECTIONS FOR DETERMINING TRUE CAPACITIES OF GLASS VESSELS FROM THE WEIGHT OF WATER IN AIR
(Bureau of Standards, Circular 19)
Indicated Capacity 1 liter
(Amounts to be added to apparent weight of water in grams to obtain actual capacity in cc. at 20 deg. C.

Temperature deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	2.07	2.08	2.10	2.11	2.12	2.14	2.15	2.16	2.17	2.19
16	2.20	2.21	2.23	2.24	2.25	2.27	2.28	2.29	2.31	2.32
17	2.34	2.35	2.37	2.38	2.40	2.41	2.43	2.44	2.46	2.47
18	2.49	2.50	2.52	2.54	2.55	2.57	2.58	2.60	2.62	2.63
19	2.65	2.66	2.68	2.70	2.72	2.73	2.75	2.77	2.79	2.80
20	2.82	2.84	2.86	2.87	2.89	2.91	2.93	2.95	2.96	2.98
21	3.00	3.02	3.04	3.06	3.08	3.10	3.12	3.13	3.15	3.17
22	3.19	3.21	3.23	3.25	3.27	3.29	3.31	3.33	3.35	3.38
23	3.40	3.42	3.44	3.46	3.48	3.50	3.52	3.54	3.57	3.59
24	3.61	3.63	3.65	3.67	3.70	3.72	3.74	3.76	3.79	3.81
25	3.83	3.85	3.88	3.90	3.92	3.95	3.97	3.99	4.02	4.04
26	4.06	4.09	4.11	4.14	4.16	4.18	4.21	4.23	4.26	4.28
27	4.30	4.33	4.35	4.38	4.40	4.43	4.45	4.48	4.51	4.53
28	4.56	4.58	4.62	4.63	4.66	4.69	4.71	4.74	4.76	4.79
29	4.82	4.84	4.87	4.90	4.92	4.95	4.98	5.01	5.03	5.06

For flasks larger or smaller than 1 liter use proportionate corrections.

Note: If the weight of the flask filled with water is greater than the capacity of the balance, the contents of the flask may be ascertained by means of calibrated pipettes and burettes, using water at 20 deg. C.

(2) PIPETTES: The time of delivery for a pipette is generally marked upon it. If not, the time may be arbitrarily chosen, depending upon the size of the pipette and within the limits of Table II, and etched upon the bulb.

In calibrating, clean the pipette thoroughly with chromic acid cleaning solution, rinse free from acid, fill with water to the upper mark, and let the water run out into a weighed Erlenmeyer flask. At the end of the time specified for delivery (figured from the time the water is released), touch the tip of the pipette to the liquid and immediately withdraw it.

TABLE II
DELIVERY TIME FOR PIPETTES

Size of Pipettes, Cubic Centimeters	Time of Delivery, Seconds
10 or less	12-15
10-50	15-20
50-100	20-30
100 or more	30-40

The Erlenmeyer flask shall be as small as possible and shall be weighed immediately with the water to avoid loss by evaporation. In the case of small pipettes, the water shall be at exactly 20 deg. C. when delivered. For pipettes of 25-cc. capacity or larger, the temperature of the water may be determined immediately after weighing and corrected to the corresponding volume at 20 deg. C.

Note: Pipettes calibrated *for delivery* with water should be used only for liquids of approximately the same viscosity as water.

(3) BURETTES: Burettes shall be calibrated by the Ostwald pipette, Fig. 1. Attach this to the tip of the burette, or in the case of a side-arm burette, to the side-arm, with a pinch-cock between the pipette and the burette. Also attach an outlet tube by a rubber connection with a pinch-cock to the bottom of the pipette. Clean the burette thoroughly and fill with water some distance above the upper mark. Clamp the burette and pipette in such a way that they remain rigid during the calibration. Let the water run from the pipette into the burette by means of the pinch-cock, making sure no air bubbles are present. Set the water in the burette at the zero point and the water in the pipette at the lower mark. The apparatus is now ready to make the calibration.

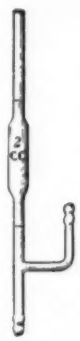

FIG. 1
Ostwald Pipette.

Let water run from the burette into the pipette to the upper mark. Then draw it off to the lower mark of the pipette. Take the reading of the burette and repeat the operation until the water is nearly at the end of the graduations of the burette, noting accurately the burette reading each time the pipette is filled. Then again fill the burette to the zero mark with water and draw off the water down to the last reading obtained during the calibration, catching the water in a small weighed Erlenmeyer flask and letting the burette drain 3 minutes before making the final adjustment. The water in the burette shall be at 20 deg. C. or at a known temperature so that its volume may be corrected to 20 deg. C.

Divide the volume of the water at 20 deg. C. by the number of times the pipette was filled. This will give the capacity of the pipette, which shall be calculated to three decimal places. Suppose this to be 2.001 cc., then the difference between the successive readings of the burette and the successive numbers 2.001, 4.002, 6.003, etc., gives the error in the graduations of the burette at these intervals. Each burette should be numbered and its correction tabulated, or plotted as a curve, showing + or — corrections at each even cc. mark.

Analytical Weights

The simplest way to calibrate a set of weights is to compare

TAPPI SECTION, PAGE 270

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Send suggestions and criticism to R. C. Griffin, 30 Charles River Road, Cambridge, Mass.

each weight directly with the corresponding weight from a set of standard weights which are known to be correct. It may happen, however, that the majority of the weights in a given set would require a correction by this process, whereas their ratio one to another in the same set is correct. Such a set may be calibrated merely by getting an accurate comparison between the different weights. The most satisfactory procedure is T. W. Richards' Method of Substitution.[1]

The weights to be standardized are weighed wholly on one side of the balance, the comparison being made by substitution. It is necessary that all of the fractional weights taken together shall constitute a gram and during the calibration it is convenient to add an extra centigram weight from another set. The different weights of the same denomination should be marked for easy identification and should always be arranged in the same order in the box.

Place one of the centigram weights on the left-hand scale pan and balance it by any suitable tare. A set of crude weights

TABLE III
DATA FOR CALIBRATION OF WEIGHTS

Nominal Values	Data Obtained by Substitution Method, Grams		Preliminary Values (Actual), Grams	Aliquot Parts of 10.01768 (Ideal), Grams	Corrections (Actual Minus Ideal)
(0.01)	= Standard of comparison		Standard	0.01002	—0.00002
(0.01′)	= (0.01)	+0.00006	0.01006	0.01002	+0.00004
(0.01″)	= (0.01′)	—0.00001	0.01005	0.01002	+0.00003
(0.02)	= (0.01)+0.01′	—0.00001	0.02005	0.02004	+0.00001
(0.05)	= (0.02)+ etc.	—0.00007	0.05009	0.05009	0.00000
(0.01)	= (0.05)+ etc.	—0.00006	0.10019	0.10018	—0.00001
(0.01′)	= (0.1)	+0.00001	0.10020	0.10018	+0.00002
(0.2)	= (0.1)+(0.1′)	—0.00004	0.20035	0.20035	0.00000
(0.5)	= (0.2)+ etc.	—0.00011	0.50088	0.50088	0.00000
(1)	= (0.5)+ etc.	—0.00004	1.00183	1.00177	+0.00006
(1′)	= (1)	—0.00002	1.00181	1.00177	+0.00004
(1″)	= (1)	—0.00006	1.00177	1.00177	0.00000
(2)	= (1′)+ (1″)	+0.00025	2.00383	2.00354	—0.00029
(5)	= (2) + etc.	—0.00040	5.00884	5.00884	0.00000
(10)	= (5) + etc.	—0.00040	10.01768	1.01768	Standard

is the most convenient tare and a 5-mg. weight may be kept on the left-hand pan during the entire calibration so as to bring the rider into a convenient position. Bring the balance to the correct zero point by moving the rider. Then substitute another centigram weight for the first. The amount by which the rider must be moved to the right or the left to attain the same equilibrium gives at once the positive or the negative difference between the two weights. In this way compare every weight with every other weight of the same denomination as well as with the combination of all the smaller weights.

By assuming that any one of the weights is correct it is possible to calculate the positive or negative corrections to be applied to the other weights to make the ratio correct between all the weights. It is generally most convenient to take the centigram weight as correct for preliminary calculations. From it, simply by adding or subtracting, arrange a table showing the values of all the other weights in terms of the original centigram weight. These values are usually far too different from the face values of the weights for convenient use, because the assumed standard is so small. They may be brought to a more convenient basis by dividing each value by the value of one of the larger weights. (The 10-gram weight is usually suitable.) This is most conveniently done by comparing each weight with the corresponding aliquot value of the weight taken as a final standard. The difference between the actual value and the ideal value will then give a correction to be applied to the weight, negative if the weight is not heavy enough and positive if it is too heavy. Table III shows an example of the calibration of a set of weights up to 10 grams.

If the corrections are significant, prepare a table showing at once the corrections corresponding to the usual combinations of weights from 0.01 to 0.99 gram and from 1 gram upwards.

Notes

(1) The question of positive and negative corrections is sometimes confusing. If a given weight is not heavy enough, its correction is negative, since its deficiency in weight necessitates the addition of extra weight on the rider-arm and hence the sum of the face values of all the weights used is too large.

(2) If any of the larger weights is found seriously off, it should be corrected by unscrewing the top and adding or removing weight as required. Then recalibrate the adjusted weight.

[1] J. Am. Chem. Soc., *22*, 144 (1900).

Indicators for Volumetric Analyses*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

The indicators ordinarily used for volumetric analyses shall be made up as follows unless otherwise specified:

Methyl Orange

Dissolve 1 gram in distilled water and dilute to 1 liter.

Methyl Red

Dissolve 1 gram in 100 cc. of 95 per cent alcohol.

Phenolphthalein

Dissolve 5 grams in 500 cc. of 50 per cent alcohol. Since this solution will be slightly acid, it must be neutralized by adding 0.01 N alkali cautiously till a faint pink color appears, then just removing the color with a drop or two of 0.01 N acid.

Starch

Triturate 5 grams of arrowroot starch with a little cold water and then add, with constant stirring, 1000 cc. of boiling water. Set aside to cool and then decant, or better filter. Add 2 cc. of oil of cassia or of $CHCl_3$ as a preservative.

Note: So-called "soluble starch" must not be used as an indicator.

Potassium or Sodium Chromate

Dissolve 25 grams of K_2CrO_4 or 21 grams of Na_2CrO_4 in a small amount of distilled water. Add a drop or two of $AgNO_3$ solution to remove any chloride (sufficient $AgNO_3$ must be added to form a *brick-red* precipitate), filter and dilute to 250 cc.

Ferric Nitrate

Dissolve 10 grams of $Fe(NO_3)_3.9H_2O$ in distilled water, add a few drops of dil. HNO_3 and make up to about 100 cc. A portion of this solution should be tested with $AgNO_3$ solution to make sure that it contains no chlorides.

Note: Instead of ferric nitrate, the solution may be made up from ferric alum, $Fe_2(NH_4)_2(SO_4)_4.24H_2O$. To this solution should be added a little conc. HNO_3. It should be kept in an amber-colored bottle and not exposed to the air.

Reference

SUTTON: "Volumetric Analysis."

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Send suggestions and criticism to R. C. Griffin, 30 Charles River Road, Cambridge, Mass.

Preparation and Standardization of Volumetric Solutions*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

The following directions cover the preparation and the standardization of the solutions most generally used in volumetric analyses. In making up standard solutions all weighings shall be made with standardized weights and all volumetric apparatus (pipettes, burettes and flasks) shall have been calibrated carefully at 20 deg. C. by the method for calibration of volumetric glassware. In titrating standard solutions the burettes shall be allowed to drain 3 minutes before taking the reading and proper calibration corrections shall be made.

It is not necessary to have the solutions precisely of the designated normality, provided the exact strength is known. The strength of the solution is expressed in terms of a "factor." This factor is the ratio between a given number of cc. of the solution in question and the number of cc. of a theoretically correct solution. In other words, if 50 cc. of a given solution of NaOH are neutralized by 45 cc. of exactly 0.1 N HCl, then the NaOH solution has a factor of 0.900, which is obtained by dividing 45 by 50. In using factor solutions the number of cubic centimeters of the solution in question used in titrating, multiplied by its factor, gives the corresponding number of cc. of a solution of correct strength.

All standard solution shall be made up at 20 deg. C. or made up at a known temperature and the factors corrected to 20 deg. C. according to the corrections given in Table I.

The factors of standard solutions should not be greater than 1.005 or less than 0.995. The factor of each solution shall be determined at intervals not exceeding one month and the figures should be entered in a record book kept for that purpose and also on the label of the bottle.

0.5 N HYDROCHLORIC ACID: (18.233 GRAMS HYDROGEN CHLORIDE PER LITER OR ABOUT 43.0 CC. OF CONC. HCl, SP. GR. 1.20).

Standardization

Make up the desired amount of solution, mix *thoroughly* and standardize against pure Na_2CO_3.

The sodium carbonate is best prepared by heating sodium bicarbonate[1] of the highest purity by one of the following methods:

I. Half fill a platinum dish with pure powdered $NaHCO_3$, place it in an air bath already heated to about 200 deg. C. and raise the temperature to 270-280 degrees (never more than 300 degrees). Let remain at this temperature 0.5 hour, then cool in a desiccator and, before quite cold, transfer to a warm, dry, stoppered tube or bottle, out of which it may be weighed rapidly when wanted. For each standardization of 0.5 N acid weigh out accurately about 1.1 grams of the resulting Na_2CO_3.

II. Accurately weigh a platinum crucible and place in it about 1.75 grams of pure $NaHCO_3$. Place in an asbestos disc with a hole cut in it which will admit the crucible to about half its depth. Cover the crucible and heat at a temperature which will just give a very dull red on the bottom. Continue the heating for at least 0.5 hour, cool in a desiccator and weigh accurately the resulting Na_2CO_3.

After the Na_2CO_3 is prepared (it should be anhydrous and free from lumps), dissolve the accurately weighed portion in about 100 cc. of water, add 2 drops of methyl orange and titrate with the acid to the point where the color changes from yellow to pinkish orange. For very accurate work the end point should be matched against the color of 100 cc. of distilled water saturated with CO_2 and containing 2 drops of methyl orange solution.

Calculation

1 gram of pure Na_2CO_3 is equivalent to 37.736 cc. of 0.5 N acid.

If A = weight of Na_2CO_3 taken,
B = cc. of HCl (titration),
and F = the factor of the solution;

$$\text{then } F = \frac{37.736\ A}{B}$$

The solution should be so made up that F is greater than 1. Add the required amount of distilled water to make the solution exactly 0.5 N, mix thoroughly and re-standardize the fresh solution as above.

Example: If the factor is 1.042, then for each liter of the solution there should be added 42 cc. of water.

Optional Method

Pipette 25 cc. of the acid into an Erlenmeyer flask and add an excess of $CaCO_3$ to neutralize the acidity. Add a few drops of

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[1] The sodium bicarbonate used for this purpose should be used for no other. Before use it must be carefully tested and its purity ascertained. The bottle should then be labeled "for standardizing purposes only."

TABLE I.—CONVERSION OF THE APPARENT VOLUME OF H_2O OR OF A 0.1 N SOLUTION AS READ IN GLASS AT T DEGREES TO ITS VOLUME AT 20 DEGREES C.

Vol. cc.	Corrections to be Added in cc. 15°	16°	17°	18°	19°	Corrections to be Subtracted in cc. 21°	22°	23°	24°	25°	26°	27°	28°	29°	30°
5	.004	.003	.002	.002	.001	.001	.002	.003	.004	.005	.006	.007	.009	.010	.011
10	.008	.006	.005	.003	.002	.002	.004	.006	.008	.010	.012	.015	.018	.020	.023
15	.011	.009	.007	.005	.003	.003	.006	.009	.012	.015	.019	.022	.028	.030	.034
20	.015	.013	.010	.007	.004	.004	.008	.012	.016	.020	.025	.030	.035	.040	.046
25	.018	.016	.012	.008	.004	.004	.009	.014	.020	.025	.031	.037	.044	.050	.057
30	.023	.020	.015	.010	.005	.005	.011	.017	.024	.029	.037	.045	.053	.061	.069
35	.027	.022	.017	.012	.006	.006	.013	.020	.028	.034	.044	.052	.062	.071	.080
40	.030	.025	.020	.014	.007	.007	.015	.023	.032	.039	.050	.060	.070	.081	.092
45	.034	.028	.022	.015	.008	.008	.017	.026	.036	.046	.056	.067	.079	.091	.103
50	.038	.031	.024	.017	.009	.009	.019	.029	.040	.051	.063	.075	.088	.101	.115
100	.076	.063	.049	.034	.018	.018	.038	.058	.080	.102	.126	.150	.176	.202	.229

In using burettes all corrections may be rounded off to the nearest 0.01 cc., whereas the next decimal place should be used in accurate work with pipettes smaller than 25 cc. For Normal Solutions the above corrections should be increased by 50 per cent and for 0.5 N Solutions by 25 per cent.

K_2CrO_4 or Na_2CrO_4 indicator solution, titrate with 0.1 N $AgNO_3$ solution to the appearance of a reddish color and note the exact amount of the $AgNO_3$ required. To another 25 cc. portion of the acid add the amount of 0.1 N $AgNO_3$ found by the previous titration and 1 drop in excess. Heat to boiling and let stand, protected from the light, until the AgCl settles clear. Filter on a Gooch crucible, previously heated to 140-150 deg. C. and weighed; wash with hot water, testing the filtrate to make sure of an excess of $AgNO_3$. Dry the AgCl at 140-150 deg. C., cool and weigh. Or, place the Gooch crucible in a larger platinum crucible and heat over a flame until the edges of the AgCl just *begin* to fuse; then cool and weigh.

Calculation

The weight of AgCl equivalent to 25 cc. of exactly 0.5 N HCl is 1.7917 grams. Hence the factor of the solution is obtained by dividing the actual weight of AgCl found by 1.7917.

0.1 N HYDROCHLORIC ACID: (3.647 GRAMS HYDROGEN CHLORIDE PER LITER OR ABOUT 8.45 CC. OF CONC. HCl.)

Standardization

Follow the same method as for 0.5 N HCl; dissolve about 1 gram of Na_2CO_3 (accurately weighed) in 500 cc. of water in an accurate volumetric flask, pipette out 100 cc. of this diluted solution with an accurate pipette and titrate with the 0.1 N HCl.

0.1 N CAUSTIC: (5.610 GRAMS KOH OR 4.001 GRAMS NaOH PER LITER. WEIGH OUT ABOUT 5.8 GRAMS OF STICK KOH OR 4.2 GRAMS OF STICK NaOH FOR EACH LITER OF SOLUTION).

Standardization

Pipette out 50 cc. of the solution and titrate against 0.1 N HCl, using 2 drops of methyl orange indicator. Titrate a second 50-cc. portion with phenolphthalein indicator. The factor for *each* indicator should be written on the bottle. The factor is obtained by multiplying the factor of the 0.1 N HCl by the number of cc. of the latter used in titration and dividing by 50 the figure thus obtained.

0.1 N OXALIC ACID: (6.302 GRAMS $H_2C_2O_4.2H_2O$ PER LITER).

Standardization

Pipette out 50 cc. of the solution and titrate with 0.1 N caustic and phenolphthalein. Multiply the number of cc. of 0.1 N caustic used in the titration by its phenolphthalein factor and divide by 50 to obtain the factor of the solution.

Note: This solution may also be standardized against 0.1 N $KMnO_4$ solution. It should be kept in a dark-colored bottle away from light.

0.1 N POTASSIUM PERMANGANATE: (3.161 GRAMS $KMnO_4$ PER LITER).

Note: The $KMnO_4$ should be dissolved in a small amount of distilled water and filtered through glass wool or a Gooch crucible with an asbestos mat before diluting to proper volume. This solution should be kept in a dark-colored bottle away from light.

Standardization

Weigh out accurately 6.700 grams of pure, freshly dried sodium oxalate. Dissolve in 250-300 cc. of hot distilled water. Transfer to a liter volumetric flask and make up to volume at 20 deg. C. This solution will be exactly 0.1 N.

Pipette out 50 cc. of the above solution into an Erlenmeyer flask. Add 5 cc. of conc. H_2SO_4 and heat to boiling. Titrate immediately with the $KMnO_4$ solution, adding the latter drop by drop at first. The first appearance of a faint but permanent pink color is taken as the end-point. To obtain the factor of the $KMnO_4$ solution, divide 50 cc. by the number of cc. of $KMnO_4$ required for the titration.

First Optional Method

Pipette out 50 cc. of 0.1 N oxalic acid solution and add 50 cc. of distilled water and 5 cc. of conc. H_2SO_4; heat to boiling and titrate with the $KMnO_4$ solution until a permanent pink color forms. Multiply the factor of the 0.1 N oxalic acid solution by 50 and divide by the number of cc. of $KMnO_4$ used, to obtain the factor of the latter.

Second Optional Method

Weigh out 1.9607 grams of pure ferrous ammonium sulfate, $Fe(NH_4)_2(SO_4)_2.6H_2O$. Dissolve in 100 cc. of distilled water, add 5 cc. of conc. H_2SO_4, cool and titrate immediately with the $KMnO_4$ solution until a permanent pink color is formed. The factor is obtained by dividing by 50 the number of cc. of $KMnO_4$ solution used.

0.1 N SODIUM THIOSULPHATE: (24.820 GRAMS $Na_2S_2O_3.5H_2O$ PER LITER).

Standardization

Standardize the solution against 0.1 N $K_2Cr_2O_7$ solution as follows: Weigh out accurately 4.9035 grams of C.P., freshly dried $K_2Cr_2O_7$, dissolve in about 200 cc. of distilled water and make up to volume in a liter volumetric flask at 20 deg. C. This will make a 0.1 N solution. Place in a 350-cc. glass-stoppered bottle 100 cc. of distilled water and 30 cc. of 10 per cent KI solution. Then add from an accurate pipette 50 cc. of the above bichromate solution, followed by about 7 cc. of conc. HCl. Shake and let stand for 3 minutes. Cool under the tap so that when the stopper is removed any adhering liquid will be sucked in. Wash the stopper carefully, and titrate the contents of the bottle with thiosulphate solution. When the yellow color of iodine has almost disappeared, add about 1 cc. of starch solution and continue the titration until the deep blue color of the solution changes to sea-green. By conducting the titration carefully this change should be brought about by a single drop of thiosulphate solution.

Divide the number of cc. of bichromate solution taken (i.e. 50 cc.), by the number of cc. of thiosulphate required for the titration. The quotient will be the factor of the 0.1 N thiosulphate.

0.1 N IODINE: (12.693 GRAMS SUBLIMED IODINE PER LITER).

Note: This solution should be kept in a dark-colored bottle away from light.

Weigh out 12.7 grams of iodine for each litre of solution. Also weigh out (for each liter) 20-25 grams of pure KI and dissolve in as little water as possible. Then add the iodine and after it has dissolved make up to the proper volume.

Standardization

Pipette out 50 cc. of 0.1 N thiosulphate solution and titrate with the iodine solution, using starch indicator, until a permanent blue color forms. In this case the starch may be added directly at the beginning of the titration. The factor is obtained by multiplying the factor of the 0.1 N thiosulphate solution by 50 and dividing the result by the number of cc. of iodine solution required for titration.

0.1 N POTASSIUM BICHROMATE: (4.9035 GRAMS $K_2Cr_2O_7$ PER LITER).

Note: This salt can be obtained in very pure condition and when made up accurately should give a 0.1 N solution.

Standardization

Pipette 50 cc. of the solution into a 350-cc. glass-stoppered flask or bottle; add 150 cc. of water and 5 cc. of conc. H_2SO_4 and after cooling thoroughly add 25 cc. of 10 per cent KI solution. Stopper the flask and let stand 10 minutes, then titrate the iodine set free with 0.1 N thiosulphate solution, using starch indicator but not adding it until the yellow color of the iodine has nearly disappeared. The end-point is denoted by the change in color of the solution from deep blue to light green. The factor is obtained by multiplying the number of cc. of thiosulphate solution used by its factor and dividing the result by 50.

0.1 N SILVER NITRATE: (16,989 GRAMS OF $AgNO_3$ PER LITER).

Standardization

Pipette out 25 cc. of the solution, dilute to about 250 cc., add a slight excess of dil. HCl and let stand until clear. Filter the AgCl on a weighed Gooch crucible; wash with an extremely dilute solution of HCl, and finally once with cold distilled water. Dry at 110 deg. C. Place the Gooch crucible in a large platinum crucible and ignite gently until the edges of the precipitate *just begin to fuse.* Cool and weigh the AgCl.

The factor of the solution is obtained by dividing the weight of AgCl found by 0.3584.

0.1 N SULPHOCYANATE: (9.717 GRAMS KSCN OR 7.611 GRAMS NH_4SCN PER LITER).

Standardization

Pipette 50 cc. of 0.1 N $AgNO_3$ solution into a white porcelain dish and add 100 cc. of water, 5 cc. of dil. HNO_3 and 5 cc. of ferric nitrate solution. The latter should be approximately a 10 per cent solution and *free from chlorides.* Titrate with 0.1 N sulphocyanate solution until a permanent red coloration of the liquid appears. (This is best seen by artificial light). The factor is obtained by multiplying the factor of the 0.1 N $AgNO_3$ solution by 50 and dividing the product by the number of cc. of sulphocyanate soluition required in the titration.

0.1 N ARSENIOUS ACID: (4.948 GRAMS As_2O_3 PER LITER).

Dissolve 4.96 grams of the purest sublimed As_2O_3 powder in about 250 cc. of distilled water in which has been dissolved about 20 grams of pure Na_2CO_3. The mixture needs warming and shaking for some time in order to complete the solution. When the solution is clear, cool and make up to 1 liter at 20 deg. C.

Standardization

Pipette out 50 cc. into a beaker, dilute with 100 cc. of distilled water and titrate with 0.1 N iodine, using starch indicator. The starch should not be added, however, till near the end of the titration. The factor is obtained by multiplying the number of cc. of 0.1 N iodine solution used by its factor and dividing the product by 50.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Paper Specialties

Removing Digester Liquor from Wood Pulp Digesters. Einar Morterud. U. S. pat. 1,836,862, (Dec. 15, 1931.). After termination of the digestion process, washing liquid of a temperature lower than that prevailing in the digester is introduced into the upper part of the latter together with an inert pressure gas such as air to maintain in the digester, during the washing process, a substantially constant pressure.—A. P.-C.

Digesting Wood and Similar Materials. Walter H. Swanson and Lloyd Lang assignors to Paper Patents Co. U. S. pat. 1,831,206 (Nov. 10, 1931). Digesting liquor is introduced in a plurality of jets into the lower portion of a digester containing pulp, the liquor is removed from the upper portion of the digester, heated and then returned to the lower portion, in cyclic circulation.—A. P.-C.

Paper Making Process. F. B. Dehn assignee of Beloit Iron Works. Brit. pat. 358,615 (July 27, 1930). The paper stock is transferred to a fourdrinier wire, which is left undisturbed until a predetermined quantity of water has drained therefrom, and is afterwards shaken to effect proper distribution and interlacing of the fibers in the sheet.—A. P.-C.

Rubber-Covered Metal Roll for Marking Paper. Jean K. Vanatta assignor to Nekoosa-Edwards Paper Co. U. S. pat. 1,837,084 (Dec. 15, 1931). A metal body such as steel carries a layer of soft rubber directly adhering to the metal so as to resist separation by a force less than 500 lb. per sq. in., and an overlying layer of hard rubber vulcanized to the soft rubber layer and carrying engraved designs for marking paper.—A. P.-C.

Preheating Paper at the Presses. William P. Argy. U. S. pat. 1,836,834 (Dec. 15, 1931). Before passing through the last press, the paper is passed over a preheating roll which raises the temperature of the web to 100° to 105°F.—A. P.-C.

Rotary Dewatering Sieves for Pulp. J. Strindlund. Brit. pat. 336,879 (Dec. 27, 1929). A cylindrical sieve which rotates partly immersed in the stock has a number of chambers below the sieve cloth, each of which is provided with an outflow pipe which is bent backward with respect to the direction of rotation so that the outflow end remains immersed in the water passing into the interior of the sieve until the layer of pulp on the sieve has moved out the stock. The dewatering is effected by the difference in pressure due to the level of the stock being higher than that of the outflowing water in the interior of the cylinder.—A. P.-C.

Preparation of Wood Fiber for Use in the Manufacture of Viscose. E. W. Roberts. Brit. pat. 361,022 (Sept. 3, 1930). After separation of the bulk of the water by settling, screening, etc., the pulp is allowed to dry out slowly by the gradual appli-

cation of heat without pressure in or adjoining the building where the viscose is manufactured, so that no subsequent disintegration is needed before conversion into alkali-cellulose.—A. P.-C.

Pulp Drying.. E. F. Sundstrom and K. E. Steen. Brit. pat. 338,547 (July 18, 1929). An apparatus suitable for collecting paper pulp or peat fiber from suspension in water and drying it sufficiently for transport comprises a vessel, maintained under a considerable head of the liquid, of which the bottom is formed of a perforated roll, and the upper part may be maintained full of compressed air to such an extent that the upper part of the roll is exposed to the air which passes through and partly dries the collected pulp. The drying may be completed in another vessel, supplied with warm air, of which the bottom is formed by the sheet of pulp supported on perforated rolls.—A. P.-C.

Paper Machine Lower Press Roll. Herman L. Kutter assignor to The Black-Clawson Co. U. S. pat. 1,834,852 (Dec. 1, 1931). The roll comprises a cylindrical cast iron shell which has longitudinal grooves extending the full length of the roll, preferably about 2 in. wide, 1 in. deep and spaced about 1.5 in. apart. Over the shell is a brass or bronze sleeve or jacket perforated with a large number of passages, preferably about 5/32 in. in diameter, arranged so that their inner ends register with the grooves in the shell.—A. P.-C.

Method of Mounting Press Rolls. Herman L. Kutter assignor to The Black-Clawson Co. U. S. pat. 1,818,719 (Aug. 11, 1931). Hydraulic means are provided for raising the top press roll out of contact with the bottom roll, and for lowering it back into its working position.—A. P.-C.

Automatic Compensator for Paper Machine Felts.. William J. Trempe. U. S. pat. 1,826,103 (Oct. 6, 1931). On the shaft at each end of the tension roll is a sheave mounted in a block and supported on guiding rails. The ends of a sprocket chain passing around sprocket wheels at the ends of the rails are attached to the block. The arrangement is identical on both sides of the paper machine, and corresponding sprocket wheels are mounted on common shafts. On one of these shafts is a drum, around which is wound a cable of suitable length to the free end of which is attached a weight for supplying tension to the felt. In order that the tension may be relieved (e.g., for changing the felt) without removing the weight, a pawl and rachet mechanism is provided on the shaft of the drum to hold the weight in any given position.—A.P.-C.

Cylinder Machine for Making Fiberboard. Erwin H. Hussey. U. S. pat. 1,831,599 (Nov. 10, 1931).—A thick sheet consisting of a single ply is formed on a single cylinder. The Stock is directed to the forming cylinder against the direction of rotation of the latter. Vacuum is maintained over the forming area of the cylinder and also over the pressing area, but is released at the point at which the sheet is taken off the cylinder. The cylinder is mounted eccentrically in the tank (which is round-bottomed), so as to provide a narrow space at the back where forming starts and a large space in the front.—A.P.-C.

Cylinder Paper Machine. Howard Parker assignor to Brown Co. U. S. pat. 1,833,910 (Dec. 1, 1931).—In order to obtain a multi-ply sheet having a substantially equal tearing strength in the machine and cross directions, one or more of the plies are formed under conditions in which a stream of pulp is caused to flow adjacent to the cylinder mold and parallel to its axis—A.P.-C.

Cylinder Machine for the Production of Fiberboard. William A. Darrah. U. S. pat. 1,819,771 (Aug. 18, 1931).—Pulp is delivered from a headbox on to the inside of a large horizontal, cylindrical screen, preferably about 20 to 30 ft. in diameter and 10 ft. wide, rotating at a linear speed of up to 3000 or 4000 ft., until a layer of sufficient thickness has been built up. If desired, different types of stock or of materials can be used successively in building up the sheet. A board-supporting number is introduced into the cylinder, the sheet is detached and withdrawn, and it is deposited on a table formed of rotating rolls which feed it through a press, from which it passes to a drier.—A.P.-C.

Automatic Steam Control and Differential for Paper Machine. Cole Stickle. U. S. pat. 1,817,110 (Aug. 4, 1931).—This is an improvement on the apparatus of U. S. pat. 1,674,845, June 26, 1928, and consists in combining therewith means for restricting automatically the flow of steam from the condensing section of the dry section of the drying battery, so that at no time can the pressure equalize in the two sections, the restricting means being preferably located in the connection leading from the header of the condensing section to the return header which communicates directly with the vacuum pump line. An air-cooled condenser, preferably a vapor vacuum blast coil, is inserted in the discharge line adapted to maintain the vacuum in the line to cause the desired drainage of the driers.—A.P.-C.

Method of Drying Paper. Erik Alexander Ohlin. U. S. pat. 1,830,287 (Nov. 3, 1931).—In Yankee machines, the upper portion of the large drier is enclosed in a cylindrical, double-walled casing. Air of the highest possible temperature that can be used without damaging the quality of the paper (about 60° to 70°C.) is introduced between the cylinder and casing at the paper-inlet end and is discharged at the paper-outlet end. Hot water, e.g., condensate from the drier, is circulated between the walls of the casing, the latter being lagged with a suitable insulating material.—A.P.-C.

Paper Winding Machine. Karl Sieg assignor to Samuel Langston Co. U. S. pat. 1,827,802 (Oct. 20, 1931).—The patent covers various features of construction of winders whereby the movable rack bars, by means of which parallelism to the rider roller with the paper roll is ensured, are more effectively confined within the body of the machine.—A.P.-C.

Slitter and Rewinder. Karl Sieg assignor to Samuel M. Langston Co. U. S. pat. 1,831,201 (Nov. 10, 1931).—A motor is provided for raising or lowering the rider roll. The motor shaft is preferably coupled through a train of speed-reducing gearing to a sector plate on a rock shaft. The curved length of the sector plate is such that it passes out of engagement with the gear when the rider roll reaches its uppermost position.—A.P.-C.

Roll Ejecting Mechanism for Winding Machines. Karl Sieg assignor to Samuel M. Langston Co. U. S. pat. 1,833,185 (Nov. 24, 1931).—The invention provides a manually operated roll-ejecting lever of the first class which can swing about its fulcrum point and has one end adapted to engage the roll to eject the latter from the machine. There is an adjustable supporting means for the level fulcrum so that the lever may be normally held out of the path of the paper, but may be brought into proper operative position relative with the wound roll to be ejected, irrespective of the diameter or length of the latter.—A.P.-C.

Paper Slitter. Robert McC. Johnstone assignor to Cameron Machine Co. U. S. pat. 1,820,142 (Aug. 25, 1931).—To prevent chattering or vibration of the slitters on very wide machines, the slitters are driven by means of a member in the form of a long gear extending the full width of the machine. Each of the slitting elements is mounted on a bracket which is slidably adjustable along rails extending across the machine. The bracket carries an idler gear which meshes on one side with the main driving gear and on the other with a pinion on the shaft of the slitting element.—A.P.-C.

Device for Controlling the Tension of Paper During Winding. Robert McC. Johnstone assignor to Cameron Machine Co. U. S. pat. 1,832,906 (Nov. 24, 1931).—A pump is mounted on the shaft of the roll being unwound and the work done by the pump acts as a brake on the roll.

Winder Drive. Lloyd E. Miller assignor to The Reliance Electric and Engineering Co. U. S. pat. 1,824,614 (Sept. 22,

1931).—The slitter and each of the drums of the winder are driven by individual, compound-wound electric motors. The connections are such that the shunt windings are always energized, but are insufficient to operate either the winder or the slitters; they are sufficient, however, to maintain the paper under tension and prevent any slack gathering between the calender and winder. When the series windings are energized, the slitter motor starts up slightly in advance of the winder motors owing to a greater initial starting torque.—A.P.-C.

Slitter. Charles C. Van Stry assignor to Cameron Machine Co. U. S. pat. 1,821,681, (Sept. 1, 1931).—The invention provides a score-cut slitting device that acts both as a slitting means and as a separating device. This is obtained by leading the paper to be slit in such a manner that, after being cut, the paper moves out of contact with the backing roll but remains for a slight distance in contact with the slitting disc, thus ensuring complete severance of the web at the slit.—A.P.-C.

Slitting and Winding Apparatus. Alfred J. Jones and Frederick Nicholas assignors to E. S. and A. Robinson, Ltd. U. S. pat. 1,833,580, (Nov. 24, 1931).—The invention relates particularly to apparatus for slitting and reeling waxed bread wrapping paper directly as it comes from the waxing machine, so as to avoid rewinding. A roll engages the roll and web as it is being wound and is adapted to combine the dual functions of a pressure roll and a backing roll for the slitting disks. The roll and slitting disks are mounted on a pivoted frame adapted to be variably weighted or arranged as a spring counterbalance so that the pressure on the reel may be maintained uniform irrespective of the growth of the wound roll, while permitting adjustment of pressure as may be necessary.—A.P.-C.

Guarded Cutter. William Fairchild assignor to A. P. W. Paper Co. U. S. pat. 1,817,481 (Aug. 4, 1931).—The invention provides a guard which totally encloses the exposed portion of a slitting disk. The guard can be raised from the cutter, but is normally held in position by means of a spring. The construction is such that the guard follows the cutter when the position of the latter is adjusted across the width of the machine. —A.P.-C.

Apparatus for the Manufacture of Cardboard. Anna Engel. U. S. pat. 1,823,792 (Sept. 15, 1931).—In an apparatus for the production of a continuous web of cardboard or thick paper from a layer of fluid pulp, drainage is effected by suction and compression, the compression is exerted by two plates which are alternately raised and lowered together or separately in such a way as to cause the pulp to undergo a series of consecutive and independent pressures. A number of constructional features are incorporated in the machine.—A.P.-C.

Apparatus and Process for Making Boards. William A. Darrah. U. S. pat. 1,821,209 (Sept. 1, 1931).—The object of the invention is to provide means for making a board that combines hardness and strength with lightness and insulating quality. Moistures, either alone or together with mineral and/or fibrous material, is applied to one or both surfaces of a board formed and dried by any previously-known process. The applied surfacing is smoothed out and compacted by means of "beating" devices, and is then dried.—A.P.-C.

Sheet Conveyer for Board Driers. Charles A. Upson assignor to The Upson Co. U. S. pats. 1,834,323 and 1,834,324 (Dec. 1, 1931).—In driers in which rigid boards are conveyed back and forth on horizontal tiers of rolls provision is made for rapidly transferring the boards from each tier to the next lower one, two different forms being provided for in the two patents.—A.P.-C.

Method of and Apparatus for Making Multi-Ply Boards. Max H. Kliefoth assignor to C. F. Burgess Laboratories, Inc. U. S. pat. 1,818,716 (Aug. 11, 1931).—The invention provides means for smoothing down the edges of the folds formed by the apparatus described in U. S. pats 1,737,282, 1,737,283 and 1,737,285, of Nov. 26, 1929, as soon as they have been formed.—A. P.-C.

Paper-Coating Machines. Lynn B. Case assignor to John Waldron Corp. U. S. pats. 1,827,640 and 1,827,641 (Oct. 13, 1931).—These two patents provide for an improved curved coating table, on which the paper is kept evenly stretched during the coating operation, and over which it is carried by means of a rubber apron. The coating material is distributed over the surface of the paper by means of batteries of vibrating brushes which are operated so as to insure full contact of each brush with the paper throughout its entire reciprocation. The coated paper is drawn through the machine by leading it over an endless wire passing around a suction roll. The color applying device is driven by means of the rubber belt from its receiving end. In order to thread the paper through the machine, means are provided for lowering the coating table out of contact with the brushes. Chilled iron rolls are provided at the point at which the coating material is applied to the paper in order to prevent or reduce eroding of the rolls by the grit which may be present in the coating mixture.—A. P.-C.

Coating and Treating Paper. Azariah Y. Pearl assignor to Laboratoires Sevigne-Pearl. U. S. pat. 1,829,153 (Oct. 27, 1931). —Nitrocellulose and a suitable crystallizable compound, sublimable or vaporizable below the decomposition temperature of nitrocellulose, are dissolved in a common solvent, together, if desired, with a dye. The solution is flowed onto a web of paper through a box having a series of gates and provided with an adjustable doctor to distribute the coating material evenly over the paper. The paper is passed through a chamber maintained at a relatively low temperature to remove the solvent and permit the other component to crystallize. The paper is then passed through a chamber at a sufficiently high temperature to volatilize the crystalline compound, leaving behind in intaglio in the coating the design of the crystals.—A.P.-C.

Apparatus for Making Building Sheet Material. Harry E. Holcomb assignor to Fiberfraks, Inc. U. S. pat. 1,822,891 (Sept. 15, 1931).—Shingles are made of asbestos fiber and hydraulic cement. A pair of rotary disks are spaced apart a distance equal to the width of the desired sheet, and an endless wire fabric passes around the under portion of the disks. The material, in aqueous suspension, is flowed on to the wire to form the sheet, which is then pressed, removed from the wire and treated in known manner.—A.P.-C.

Roofing and Method of Making Same. Lester Kirschbraun assignor to The Patent and Licensing Corp. U. S. pat. 1,821,-522, (Sept. 1, 1931.)—The patent provides for the production of roofing having the entire thickness of the weather-exposed portions built up of hardened plastic material (such as blown asphalt), and having the unexposed portions formed partly of hardened plastic material and partly of a layer or layers of fibrous felt, preferably saturated with waterproofing material. One face of a strip of saturated roofing felt is supplied with a relatively thick layer of plastic bitumen, and the material is then passed through a series of pressure-applying stages so that a portion of the bitumen is gradually forced out sideways beyond the marginal edge of the felt, and so that the thickness of the combined material gradually increases from the center out. The strip is then slit longitudinally through the center.—A.P.-C.

Building Board and Process of Making Same. Harry A. Cumfer assignor of one-half to Willard J. Mason. U. S. pat. 1,831,058, (Nov. 10, 1931).—The inner ply or plies preferably consists of roofing felt provided with a large number of very small perforations, preferably arranged as intersecting lines. Both surfaces are coated with asphalt under such conditions that the latter does not penetrate appreciably into the sheet; but it flows into the perforations and spreads slightly sideways from the perforations to form continuous lines of asphalt-coated fibers. While the asphalt is still in an adhesive condition facing sheets are applied and the built-up sheet is pressed.—A.P.-C.

United States Patents On Papermaking

First Quarter, 1932

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

NOTE—Printed copies of the patents listed below may be obtained at ten cents ($0.10) each from the Commissioner of Patents, Washington, D. C. Stamps and personal checks are not accepted. The execution of orders will be considerably expedited if coupons are used.

JANUARY 5, 1932

R18,312. Coated paper. Gustavus J. Esselen and Reed P. Rose, assignors to General Rubber Company, New York, N. Y. Original patent No. 1,746,888, dated Feb. 11, 1930. Application for reissue filed Sept. 1, 1931. 12 claims. (Cl. 91-68).

1,839,249. Filter for paper making. Charles William Nelson, assignor to Paper Patents Company, Neenah, Wis. Filed Apr. 12, 1929. 11 claims. (Cl. 92-42).

1,839,346. Manufacture of cigarette paper. Basile Seferiadis, assignor to S. C. Patents Limited, London, England. Filed Jan. 27, 1930. 14 claims. (Cl. 92-21). C. A. 26:1443.

1,839,449. Paper manufacture. Edwin Sutermeister and Joseph A. Warren, assignors to S. D. Warren Company, Boston, Mass. Filed Apr. 7, 1928. 6 claims. (Cl. 92-21). Combined filling and sizing process. C. A. 26:1442.

1,839,491. Scoring mechanism for envelope machines and the like. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Jan. 26, 1927. 14 claims. (Cl. 93-61).

1,839,492. Scoring mechanism for use in envelope making machines. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Mar. 21, 1929. 15 claims. (Cl. 93-62).

1,839,660. Process for making waterproof insulating bodies. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed Aug. 10, 1929. 9 claims. (Cl. 92-21). Use of sulphur. C.A. 26:1443.

1,839,753. Paper pulp beating machine. Edward B. Fritz, Chicago, Ill. Filed July 20, 1928. 7 claims. (Cl. 92-24).

1,839,784. Continuous machine for making paper, artificial leather and the like. Cristoforo Carcano, Maslianico, Italy. Filed July 23, 1929. 5 claims. (Cl. 92-39).

1,839,995. Safety paper and method of making the same. Arthur E. Remick, assignor to The Todd Company, Inc., Rochester, N. Y. Filed Aug. 22, 1929. 8 claims. (Cl. 91-67.95). C. A. 26:1443.

1,839,996. Process of manufacturing sheet material and product obtained thereby. Reed P. Rose and Harold E. Cude, assignors to General Rubber Company, New York, N. Y. Filed May 31, 1928. 15 claims. (Cl. 92-21). Impregnation with rubber.

1,840,101. Apparatus for controlling the working of material. Helgo Wiggo Jespersen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Jan. 2, 1929. 14 claims. (Cl. 92-46).

1,840,102. Apparatus for cleaning articles. Helgo Wiggo Jespersen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Jan. 2, 1929. 9 claims. (Cl. 92-50). C. A. 26:1442.

1,840,157. Manufacture of new products comprising lignone derivatives. Charles Frederick Gross, London, England, and Alf Engelstad, Vardal, Norway. Filed Mar. 7, 1928. 6 claims. (Cl. 252-6). Use of lignone derivatives in forming emulsions.

1,840,162. Process of opening up resiniferous wood. Heinrich Heimann, Erich Opfermann, Irnfried Petersen, Kreis Bitterfeld and Alfons Bayerl, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Mar. 26, 1931. 3 claims. (Cl. 92-9). Nitric acid is used first, followed by alkali. C. A. 26: 1437.

1,840,198. Process for the extraction of cellulose from materials containing cellulose. Heinrich Heimann, Irnfried Petersen, Kreis Bitterfeld, Alfons Nayerl and Hermann Seefried, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Apr. 12, 1930. 6 claims. (Cl. 92-9). Preliminary impregnation with nitric acid. C.A. 26:1438.

JANUARY 12, 1932

1,840,399. Sized paper and method of making same. Geroud T. Lane, assignor to Eastman Kodak Company, Rochester, N. Y. Filed Mar. 1, 1929. 23 claims. (Cl. 92-21). Use of soap or fatty acid with 9 or more carbon atoms. C. A. 26:1787.

1,840,413. Method of producing high-grade cellulose from wood, straw, grasses and other vegetable materials. Ernst Schmidt, Arnau-on-the-Elbe, Czechoslovakia. Filed Dec. 26, 1929. 2 claims. (Cl. 92-11). Use of a water-soluble sulphate with a sulphite liquor. C. A. 26:1785.

1,840,440. Packet forming machine. Adino F. Files, Maumee, Ohio. Filed Oct. 14, 1929. 3 claims. (Cl. 93-1). Apparatus for coating with wax.

1,840,590. Drive for paper making machines. Bernard A. Malkin, Lachine, Quebec, Canada. Filed Mar. 29, 1930. 7 claims. (Cl. 92-38).

1,840,774. Process of and apparatus for the treatment of pulp. Hobert W. French, assignor to Hammermill Paper Company, Erie, Pa. Filed Nov. 29, 1929. 10 claims. (Cl. 92-7). Blow pit.

1,840,952. Method of determining sulphur dioxide, hydrogen sulphide or both in gas mixtures. Arthur H. Henninger, assignor to General Chemical Company, New York, N. Y. Filed Nov. 5, 1926. 10 claims. (Cl. 23-232).

1,840,984. Roofing strip and process. Charles G. Talbott, assignor to The Barrett Company, New York, N. Y. Filed May 7, 1925. 11 claims. (Cl. 108-7).

1,840,997. Method of forming shingle strips. Frank W. Yeager, assignor to The Barrett Company, New York, N. Y. Filed Dec. 27, 1928. 5 claims. (Cl. 164-17).

1,841,067. Manufacturer of rubber-fiber products. George P. F. Smith and Thomas G. Richards, assignors to Dispersions Process, Inc., Dover, Del. Filed Oct. 29, 1928. 13 claims. (Cl. 92-21).

1,841,296. Method and apparatus for manufacturing roofing. Frederick C. Overbury, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Aug. 5, 1927. 9 claims. (Cl. 91-68).

JANUARY 19, 1932

1,841,551. Multiple-step process of fiber liberation. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed May 6, 1930. 3 claims. (Cl. 92-11). C. A. 26:1785.

1,841,678. Felting, more particularly for insulation blocks. Frank C. Russell, assignor to The Minwool Insulating Company, Toledo, Ohio. Filed Dec. 5, 1927. 9 claims. (Cl. 92-54).

1,841,693. Stock flow device. Alonzo Aldrich and Earl E. Berry, assignors to Beloit Iron Works, Beloit, Wis. Filed Jan. 10, 1931. 20 claims. (Cl. 92-44).

1,841,702. Wire vibrator. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Jan. 2, 1931. 16 claims. (Cl. 92-45).

1,841,752. Industrial chemical vessel. Ralph McKee, Jersey City, N. J. Filed Mar. 5, 1929. 3 claims. (Cl. 92-7). Sulphite pulp digester. C. A. 26:1786.

1,841,755. Blank creasing and folding machine. Herbert L. Mitchell and Robert C. Shepherd, High Point, N. C. Filed July 23, 1930. 18 claims. (Cl. 93-58).

1,841,785. Method of making layers of distended fibrous materials. Frank L. Bryant, assignor to Cellufoam Corporation, Chicago, Ill. Filed June 19, 1930. 19 claims. (Cl. 92-21).

1,841,945. Paper reenforcing machine. George E. Gibbs, assignor to American Reenforced Paper Company, Attleboro, Mass. Filed Nov. 8, 1928. 20 claims. (Cl. 154-1).

1,841,946. Composite paper. George E. Gibbs, assignor to American Reenforced Paper Company, Attleboro, Mass. Filed Sept. 11, 1929. 5 claims. (Cl. 154-52).

1,841,999. Wire covered roll. Harrison R. Williams, Glens Falls, N. Y. Filed May 3, 1930. 7 claims. (Cl. 92-44).

1,842,020. Suction box for paper machines. William Henry Grosse, Deferiet, N. Y. Filed Nov. 11, 1929. 2 claims. (Cl. 92-51).

1,842,024. Process for retting fibers. Charles S. Hollander and Parker H. Del Plaine, assignors to Röhm and Haas Company, Philadelphia, Pa. Filed May 17, 1929. 34 claims. (Cl. 92-5).

1,842,063. Guide fingers for machines for coating webs with adhesives. August M. Becker, New York, N. Y. Filed May 17, 1929. 1 claim. (Cl. 91-58).

1,842,069. Rod mill. Willard R. Carroll, assignor to Farrel-Birmingham Company, Incorporated, Ansonia, Conn. Filed May 25, 1929. 17 claims. (Cl. 80-37).

1,842,111. Saturating apparatus and method of saturating. Carl J. Pater, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed June 29, 1926. 5 claims. (Cl. 91-46).

1,842,112. Process of sizing paper. Herbert P. Pearson, assignor to Stanco, Incorporated, New York, N. Y. Filed Oct. 31, 1929. 6 claims. (Cl. 92-21). Use of an emulsion of solid petrolatum. C. A. 26:1787.

1,842,185. Machine for banding sheets. John Magill, assignor to The Taylor Atkins Paper Company, Burnside, Conn. Filed May 27, 1931. 15 claims. (Cl. 93-93).

1,842,189. Production of box or container parts with neck inserts. Carl Wilhelm Müller, assignor to the Firm "Universelle" Cigarettenmaschinen-Fabrik, J. C. Muller and Co., resden, Germany. Filed Sept. 7, 1929. 10 claims. (Cl. 93-39).

JANUARY 26, 1932

1,842,448. Process for forming thick butt shingles. Clarence R. Eckert, assignor to The Barrett Company, New York, N. Y. Filed Aug. 14, 1926. 2 claims. (Cl. 91-68).

1,842,577. Refining and circulating device for paper stock. Joseph E. Bond, Appleton, Wis. Filed Aug. 28, 1929. 10 claims. (Cl. 93-37).

1,842,647. Preparation of thermoplastic sheets. Leo H. Bakeland, assignor to Bakelite Corporation, New York, N. Y. Filed July 5, 1928. 5 claims. (Cl. 92-21). Dry fibrous sheet containing a synthetic resin.

1,842,649. Process of treating cellulose material. Harry P. Bassett, Cynthiana, Ky. Filed Apr. 18, 1929. 10 claims. (Cl. 92-23). C. A. 26:1785.

1,842,706. Manufacture of rubber-fiber article. Frank O. Woodruff, assignor to Harry H. Beckwith, Brookline, Mass. Filed Feb. 13, 1930. 6 claims. (Cl. 92-21). Pulp impregnated with an aqueous rubber dispersion.

1,842,712. Manufacture of wood pulp, etc. Linn Bradley, Montclair, N. J., and Edward P. McKeefe, New York, N. Y. Filed June 28, 1921. 17 claims. (Cl. 92-11). Multiple alkaline process. C.A. 26:1785.

1,842,758. Method and apparatus for beating pulp. Arthur Dehan Little, Brookline, Mass., assignor to Rubber Surfacers, Inc., Wilmington, Del. Filed Nov. 7, 1929. 11 claims. (Cl. 92-24). C. A. 26:1786.

1,842,848. Method of calendering coated paper. Raymond A. Steffen, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed Nov. 1, 1929. 9 claims. (Cl. 92-71). C. A. 26:1787.

1,842,889. Paper machinery. Harrison R. Williams, Glens Falls, N. Y. Filed Sept. 1, 1928. 12 claims. (Cl. 92-67). Machine for forming soft absorbent pad webs.

1,842,893. Adhesive composition. Webster E. Byron Baker, Brooklyn, N. Y., and Harry Weaver, York Haven, Pa. Filed Aug. 28, 1928. 2 claims. (Cl. 87-17). Contains waste sulphite liquor.

1,842,924. Roll suction device. Max Wenzel, Muldenstein, near Bitterfled, Germany. Filed Dec. 8, 1930. 13 claims. (Cl. 92-51).

1,842,926. Machine for the manufacture of loosely folded envelopes. Alfred Winkler and Max unnebier, Neuwied, Germany. Filed July 7, 1930. 13 claims. (Cl. 93-62).

1,842,984. Art of preparing and making pulp suitable for manufacture into fiber-board and paper. Dell Forest Harbaugh, assignor to Improved Products Company, Chicago, Ill. Filed Apr. 6, 1931. 12 claims. (Cl. 92-9). C. A. 26: 1786.

1,843,020. Paper folding machine. Charles Laurence Burdick, London, England. Filed July 22, 1929. 9 claims. (Cl. 270-82).

1,843,027. Apparatus for shaping paper containers or cardboard boxes with flat rectangular bottoms. Ernst Hermann Jahne, assignor to "Universelle" Cigarettenmaschinen-Fabrik, J. C. Muller and Company, Dresden, Germany. Filed Feb. 26, 1931. 3 claims. (Cl. 93-51).

FEBRUARY 2, 1932

1,843,349. Artificial leather fabrication. Wallace B. Van Arsdel, assignor to Brown Company, Berlin, N. H. Filed Sept. 30, 1929. 3 claims. (Cl. 154-2).

1,843,370. Irregular strip shingle. Frederick C. Overbury, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed June 1, 1926. 3 claims. (Cl. 108-7).

1,843,372. Artificial leather fabrication. George A. Richter and Wallace B. Van Arsdel, assignors to Brown Company, Berlin, N. H. Filed Sept. 27, 1929. 8 claims. (Cl. 154-2).

1,843,464. Paper manufacture. John Traquair, assignor to The Mead Corporation, Dayton, Ohio. Filed Jan. 10, 1927. 29 claims. (Cl. 92-13). Method of pulping straw. C. A. 26:1786.

1,843,465. Paper manufacture. John Traquair, assignor to The Mead Corporation, Dayton, Ohio. Filed Apr. 27, 1928. 17 claims. (Cl. 8-2). Pulp is treated with a halogenating agent. C.A. 26:1786.

1,843,466. Paper manufacture. John Traquair, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed Dec. 29, 1928. 20 claims. (Cl. 92-7). Steeping tank and digester.

1,843,467. Paper manufacture. John Traquair and Francis G. Rawling, assignors to The Mead Research Engineering Company, Dayton, Ohio. Filed Dec. 29, 1928. 16 claims. (Cl. 92-7). Pulp from hard, deciduous woods. C. A. 26:1786.

1,843,488. Paper pasting machine. Harvey Ridge, Iola, Kans. Filed Sept. 4, 1929. 2 claims. (Cl. 91-14).

1,843,581. Method of making fiber-rubber material. Reed P. Rose and Allen F. Owen, assignors to The Mechanical Rubber Company, Cleveland, Ohio. Filed Aug. 11, 1927. 18 claims. (Cl. 92-21). Rubber is deposited on the fibers.

1,843,605. Continuous wood grinder of the chain type. Richard T. Lang, assignor to American Voith Contact Co., Inc., New York, N. Y. Filed July 2, 1926. 4 claims. (Cl. 83-75).

1,843,656. Method of and machine for making paper. John D. Tompkins and Frederick H. Fuller, assignors to Tompkins, Hawley, Fuller Company, Valatie, N. Y. Filed May 5, 1927. 15 claims. (Cl. 92-38). Web forming member.

1,843,704. Production of wood pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed Sept. 22, 1925. 9 claims. (Cl. 92-9). Sodium hydroxide, sodium sulphide and sodium sulphite are used. C. A. 26:1785.

1,843,770. Sheet carrier control mechanism. William N. Karls and William Boucher, Three Rivers, Quebec, Canada. Filed Mar. 29, 1930. 16 claims. (Cl. 92-49).

1,843,783. Process for the impregnation or incrustation of hydrolyzed fibrous materials. August Regal, Brno, Czechoslovakia. Filed Oct. 11, 1929. 1 claim. (Cl. 91-68). C. A. 26:1787.

1,843,791. Rotary pulp screen. John Stadler, Montreal, Quebec, Canada. Filed Jan. 2, 1930. 12 claims. (Cl. 92-35).

1,843,851. Process of degumming textile plants. Urbain Jules Leon Thuau, Paris, France. Filed June 6, 1930. 6 claims. (Cl. 92-9).

1,843,876. Press for use in paper making. George D. Kilberry, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed Mar. 8, 1927. 7 claims. (Cl. 92-53). Suction roll.

FEBRUARY 9, 1932

1,843,915. Laminated wall board. Philip W. Codwise, assignor to Certain-teed Products Corporation, New York, N. Y. Filed Feb. 23, 1928. 4 claims. (Cl. 154-45.9).

1,843,943. Fiber board manufacturing. James Carnie, assignor to The Mechanical Rubber Company, Cleveland, Ohio. Filed May 20, 1930. 15 claims. (Cl. 92-91). Method of waterproofing.

1,844,018. Method of preparing tanning substances. Wilhelm Sailer, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed Dec. 12, 1929. 19 claims. (Cl. 149-5). Halogenated reaction product of waste sulphite liquors is used.

1,844,019. Treatment of animal skins and felts. Wilhelm Sailer, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed Dec. 12, 1929. 7 claims. (Cl. 149-5). Waste sulphite liquor is oxidized and halogenated.

1,844,051. Mulch paper. Charles J. Allen, assignor to S. L. Allen and Co., Inc., Philadelphia, Pa. Filed May 21, 1930. 4 claims. (Cl. 47-9).

1,844,081. Paper winding mechanism. Charles W. Valentine and Alfred F. Helin, assignors to The Bagley and Sewall Company, Watertown, N. Y. Filed Sept. 12, 1929. 12 claims. (Cl. 242-65).

1,844,199. Pyro-recording paper. Richard Stuart Bicknell and Richard Howland Rangee, assignors to Radio Corporation of America, New York, N. Y. Filed Aug. 30, 1928. 21 claims. (Cl. 91-68).

1,844,294. Paper press. Nickolas J. Niks, Chillicothe, Ohio. Filed May 17, 1930. 11 claims. (Cl. 92-49).

1,844,434. Composition board and method of manufacturing the same. Brouwer D. McIntyre, Monroe, Mich. Filed Apr. 27, 1931. 16 claims. (Cl. 92-21).

1,844,467. Process of manufacturing constructional material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed Nov. 11, 1927. 17 claims. (Cl. 106-31). Use of a rubber-bearing shrub.

1,844,512. Laminated material. Gerald H. Mains, assignor to Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa. Filed Oct. 11, 1929. 9 claims. (Cl. 154-40).

1,844,580. Fourdrinier wire shaker. George H. Kendall, Everett W. Clem, Gustaf A. Peterson and John Warren Vedder, assignors to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed May 25, 1931. 9 claims. (Cl. 92-45).

1,844,600. Interrelated extracting and pulp-forming process and apparatus therefor. Reuben B. Robertson, assignor to The Champion Fibre Company, Canton, Ohio. Filed Apr. 26, 1929. 6 claims. (Cl. 92-1). Recovery of water-soluble tanning substances from raw fibers and pulping the residue.

1,844,658. Drier for paper-making machines. Harry E. Holcomb, assignor to Fiberfraks, Inc., New York, N. Y. Filed June 29, 1928. 11 claims. (Cl. 34-48).

1,844,697. Method of and means for forming paper sheets. Swan Smith, assignor to Orenda Corporation, Chicago, Ill. Filed Feb. 28, 1929. 9 claims. (Cl. 154-30). Forming grooves in sheets.

1,844,794. Method of and apparatus for stock manipulation. James G. Ramsey, assignor to The Jessup and Moore Paper Co., Philadelphia, Pa. Filed Dec. 20, 1928. 10 claims. (Cl. 92-46). Method of feeding stock to Fourdrinier wire.

1,844,861. Process for the manufacture of vegetable fiber products. William H. Mason, assignor to Masonite Corporation, Laurel, Miss. Filed July 16, 1928. 12 claims. (Cl. 92-54). Board bonded by lignin.

1,844,921. Production of hard dense bodies of vegetable fibers. William H. Mason, assignor to Masonite Corporation, Laurel, Miss. Filed May 4, 1931. 4 claims. (Cl. 92-68).

FEBRUARY 16, 1932

1,844,951. Process of making felted structures. Harry C. Fisher, Alan M. Overton and Charles L. Keller, assignors to The Richardson Company, Lockland, Ohio. Filed Oct. 26, 1929. 4 claims. (Cl. 92-21).

1,845,260. Method of printing and waxing paper. Edward C. Francoise, assignor to Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich. Filed July 29, 1929. 9 claims. (Cl. 91-67.9).

1,845,299. Saturation of sheets. Edward A. Leonard, Chicago, Ill. Filed Jan. 25, 1929. 9 claims. (Cl. 91-68)

1,845,391. Process of manufacturing containers. Logan A. Becker and John M. Munson, assignors to The Dobeckmun Company, Cleveland, Ohio. Filed Oct. 13, 1930. 11 claims. (Cl. 93-35).

1,845,444. Insulating material. Leicester B. Sawyer, assignor to The Protectahood Corporation, Auburn, N. Y. Filed Aug. 28, 1929. 2 claims. (Cl. 154-44).

1,845,456. Method of making cartons. Joshua Wagner, assignor to Diagonal Corrugated Patent Corporation, Brooklyn, N. Y. Filed Aug. 1, 1931. 3 claims. (Cl. 93-36).

1,845,487. Method for the production of pulp. Elton R. Darling, assignor to Cornstalk Products Company, Inc., New York, N. Y. Filed June 22, 1928. 8 claims. (Cl. 92-9).

1,845,488. Process of producing cellulosic pulp. Elton R. Darling, assignor to Cornstalk Products Company, Inc., New York, N. Y. Filed Dec. 13, 1928. 10 claims. (Cl. 92-13).

1,845,533. Apparatus for making pressed wood fiber products. Paul G. von Hildebrandt, assignor to Howard B. Salkeld, Pittsburgh, Pa. Filed Nov. 20, 1928. 6 claims. (Cl. 92-67).

1,845,655. Paper manufacture. Fritz Emil Fuchs, assignor to The Specialty Products Company, Inc., New York, N. Y. Filed Mar. 13, 1929. 4 claims. (Cl. 92-40). Production of transparent paper.

1,845,716. Doctor. John A. Lafore, Lower Merion Township, Montgomery County, Pa. Filed June 13, 1930. 11 claims. (Cl. 92-74).

1,845,804. Apparatus for the manufacture of hollow bodies from fiber pulp. Carl Munze, assignor to Keyes Container Corporation, Boston, Mass. Filed Nov. 28, 1928. 7 claims. (Cl. 92-54).

1,845,830. Art of producing molded articles. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Nov. 2, 1928. 14 claims. (Cl. 92-56).

1,845,831. Art of producing molded pulp articles. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Nov. 2, 1928. 18 claims. (Cl. 92-56).

1,845,891. Carton and method of making same. Arthur C. Schroeder, assignor to Consolidated Paper Company, Monroe, Mich. Filed Feb. 24, 1931. 19 claims. (Cl. 93-36).

1,845,895. Paper cutting and folding machine. Fred S. Van Voorhis, Saugerties, N. Y. Filed Dec. 22, 1930. 18 claims. (Cl. 270-66).

1,845,970. Manufacture of hollow bodies from fibrous pulp. Eugen Katz, assignor to Keyes Container Corporation, Boston, Mass. Filed Nov. 24, 1928. 6 claims. (Cl. 92-54).

1,845,972. Method and apparatus for molding hollow pulp articles. Eugen Katz, assignor to Keyes Container Corporation, Boston, Mass. Filed May 12, 1930. 4 claims. (Cl. 92-54).

1,845,975. Building insulation. Bruno E. Balduf, assignor to United States Gypsum Company, Chicago, Ill. Filed July 18, 1929. 12 claims. (Cl. 72-123).

1,845,976. Fabric forming machine and method of making ornamental designs. Thomas Bradley Betterton, Chattanooga, Tenn. Filed Dec. 12, 1930. 9 claims. (Cl. 154-2).

1,846,003. Method of treating paper. Paul A. Gollnick, assignor to Selectograph Company, Chicago, Ill. Filed Sept. 12, 1929. 2 claims. (Cl. 91-68). Method of coating Japanese yoshino paper for stencils.

FEBRUARY 23, 1932

1,846,061. Mill. Frank J. Marshall, assignor to Lucy G. Marshall, Springfield, Mass. Filed Mar. 18, 1929. 4 claims. (Cl. 92-27).

1,846,093. Method of treating fibers for paper making and other uses. Logan A. Dils, assignor to Kellogg-Dils, Inc., Chicago, Ill. Filed Feb. 24, 1931. 60 claims. (Cl. 92-13).

1,846,094. Paper deckling device. Prestel O. Dodge, Long Beach, Calif. Filed May 13, 1930. 2 claims. (Cl. 92-13).

1,846,119. Paper folding machine. Oscar Kleinschmit, assignor to Gebruder Brehmer Maschinen-Fabrik, Leipzig-Plagwitz, Germany. Filed Dec. 23, 1929. 5 claims. (Cl. 270-68).

1,846,185. Mulch paper and process of making same. Max Cline and Ralph A. Masten, assignors to International Paper Company, New York, N. Y. Filed Jan. 14, 1930. 8 claims. (Cl. 47-9).

1,846,186. Mulch paper and process of making same. Max Cline and Ralph A. Masten, assignors to International Paper Company, New York, N. Y. Filed Jan. 14, 1930. 3 claims. (Cl. 47-9).

1,846,201. Apparatus for and method of paraffining material. Wilhelm Arno Max Hoffmeister, Neustadt, Germany. Filed Feb. 8, 1929. 6 claims. (Cl. 91-46).

1,846,220. Process and apparatus for making rosin size emulsions. Samuel W. McCune, Jr., assignor to Newport Industries, Inc., South Milwaukee, Wis. Filed Aug. 1, 1928. 3 claims. (Cl. 134-21).

1,846,244. Cup machine. Cesare Barbieri, assignor to Vortex Cup Company, Chicago, Ill. Filed Oct. 21, 1927. 21 claims. (Cl. 91-47).

1,846,310. Molded pulp article. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Mar. 7, 1928. 10 claims. (Cl. 229-5.5).

1,846,406. Process of and apparatus for the manufacture of synthetic lumber. Orland Russell Sweeney, assignor to National Cornstalk Processes, Inc., Chicago, Ill. Filed Apr. 28, 1930. 14 claims. (Cl. 92-44).

1,846,474. Apparatus for drying fibrous materials. Elton R. Darling, assignor to Cornstalk Products Company, Inc., Danville, Ill. Filed Dec. 16, 1929. 4 claims. (Cl. 34-48).

1,846,511. Manufacture of cellulose from cornstalks. Elton R. Darling, assignor to Cornstalk Products Company, New York, N. Y. Filed Dec. 13, 1928. 15 claims. (Cl. 92-14).

1,846,522. Apparatus for cleaning paper stock. Franck C. Ladd, Dalton, Mass., assignor of one-half to Franklin G. Neal, Springfield, Mass. Filed Mar. 11, 1930. 17 claims. (Cl. 92-28).

1,846,575. Manufacturing articles from cellulose compounds. Richard Weingand, Bomlitz, near Walsrode, Germany. Filed Jan. 23, 1929. 9 claims. (Cl. 154-46).

1,846,646. Felt cleaning apparatus. Eugene H. Lansing, Waterford, N. Y. Filed Apr. 4, 1929. 8 claims. (Cl. 92-50).

1,846,672. Production of pulp. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed Feb. 10, 1926. 9 claims. (Cl. 92-11).

1,846,683. Deinking apparatus. Grant Hammond, assignor to The Reclamation Company of America, Wilmington, Del. Filed Apr. 19, 1929. 23 claims. (Cl. 92-20).

1,846,770. Synchronizing device for paper machines. Walter Vogel, assignor to the Firm Aktiengesellschaft der Maschinenfabriken Escher Wyss and Cie, Zurich, Switzerland. Filed Aug. 14, 1930. 10 claims. (Cl. 92-38).

1,846,843. Coating shot shells. James H. Carmichael, assignor to Winchester Repeating Arms Company, New Haven, Conn. Filed Dec. 15, 1928. 3 claims. (Cl. 91-70).

1,846,931. Rotary screen. Joseph A. White, assignor to The Moore and White Company, Philadelphia, Pa. Filed Oct. 31, 1930. 9 claims. (Cl. 92-35).

1,846,944. Process of making wood pulp. William Brydges and Spottswood C. Foster, assignors to Bedford Pulp and Paper Company, Inc., Big Island, Va. Filed July 16, 1931. 8 claims. (Cl. 92-13).

1,847,050. Method of treating bagasse. William L. S. Williams, assignor to Hawaiian Cane Products, Ltd., Hilo, Hawaii. Filed Apr. 19, 1930. 2 claims. (Cl. 92-6).

MARCH 1, 1932

1,847,111. Process of making cellulose products. Albert H. Hooker, assignor to Hooker Electrochemical Company, Niagara Falls, N. Y. Filed Apr. 8, 1929. 2 claims. (Cl. 92-13). Sulphite fiber is converted into high alpha fiber by dilute caustic soda.

1,847,263. System for treating waste paper. Nels H. Dandberg, assignor to Waldorf Paper

Products Company, St. Paul, Minn. Filed Feb. 7, 1929. 2 claims. (Cl. 209-214). Sorting apparatus.

1,847,264. Distributing device for sorted waste paper. Nels H. Sandberg, assignor to Waldorf Paper Products Company, St. Paul, Minn. Filed Mar. 22, 1929. 12 claims. (Cl. 209-122).

1,847,265. Sorting device for waste paper. Nels H. Sandberg, assignor to Waldorf Paper Products Company, St. Paul, Minn. Filed Apr. 20, 1929. 3 claims. (Cl. 209-125).

1,847,269. Fiber product and method of making same. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Mar. 13, 1929. 15 claims. (Cl. 92-41). Laminated fibrous body.

1,847,291. Paper manufacture. Clyde A. Benson, assignor to Raffold Process Corporation, Andover, Mass. Filed Nov. 30, 1927. 7 claims. (Cl. 92-21). Use of calcium carbonate as a filler.

1,847,311. Processing of cellulose fiber. Milton O. Schur and Royal H. Rasch, assignors to Brown Company, Berlin, N. H. Filed Aug. 8, 1928. 4 claims. (Cl. 92-7). Resinous impurities are extracted from an aqueous suspension of cellulose fiber with a water-miscible organic solvent.

1,847,326. Paper pulp and process of making same. Lewis L. Alsted, Appleton, Wis. Filed Jan. 28, 1928. 17 claims. (Cl. 92-3). A dry pulp mixture containing ground wood and substantially resin-free pulp.

1,847,372. Pulp beater. William A. Bessmer, assignor to Hammermill Paper Co., Erie, Pa. Filed Sept. 20, 1930. 4 claims. (Cl. 92-24).

1,847,377. Paper making apparatus. Harry L. Brooks and Thomas O'Flynn, assignors to The Black-Clawson Company, Hamilton, Ohio. Filed July 10, 1926. 6 claims. (Cl. 92-49). Press roll and felt.

1,847,426. Pulp distributor. Nathan H. Bergstrom, Neenah, Wis. Filed July 14, 1930. 12 claims. (Cl. 92-44).

1,847,515. Machine for making blanks for cardboard boxes. Erik Manne Holmer, Gottenborg, Sweden. Filed July 1, 1930. 13 claims. (Cl. 93-36).

1,847,589. Method of heating cellulose digesting liquors. Arnold Brobeck, Bomhus, near Gevle, Sweden. Filed Feb. 14, 1929. 1 claim. (Cl. 159-47).

1,847,709. Process of making sodium lignosulphonate. Webster E. Byron Baker, York Haven, Pa. Filed Apr. 7, 1923. 1 claim. (Cl. 149-4).

1,847,767. Apparatus for making prepared roofing. Henry C. Koch, Chicago, Ill. Filed Dec. 31, 1926. 5 claims. (Cl. 164-68).

1,847,773. Paper making. Ernest Lionne, Swampscott, Mass. Filed Sept. 28, 1928. 35 claims. (Cl. 92-21). Urea formaldehyde. Resin is used as a sizing agent.

1,847,896. Container for paper rolls. William B. Powell, assignor to Appleford Paper Products Limited, Hamilton, Ontario, Canada. Filed Apr. 19, 1930. 2 claims. (Cl. 206-58).

1,847,915. Apparatus for drying paper and the like. George B. Bailey, assignor to Thermox Incoporated, Boston, Mass. Filed Mar. 8, 1930. 7 claims. (Cl. 34-48). Web drier.

1,847,971. Bark peeling machine. Walter Lee Mingledorff, Savannah, Ga. Filed July 10, 1929.

1,847,998. Means and method for joining materials together or the like. Samuel Bergstein, assignor to The Interstate Folding Box Company, Middletown, Ohio. Filed Oct. 26, 1929. 16 claims. (Cl. 93-36).

1,848,055. Art of producing molded pulp articles. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Oct. 4, 1928. 17 claims. (Cl. 92-57).

1,848,056. Integral molded article. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Feb. 15, 1929. 7 claims. (Cl. 92-55). Plate or other molded container.

1,848,066. Molded pulp article. Ernest L. Shepard and John G. Haskell, assignors to Fidelity Trust Company, Portland, Me. Filed July 12, 1929. 4 claims. (Cl. 65-15). Food container.

MARCH 8, 1932

1,848,292. Lignin derivatives and process of making same. Guy C. Howard, Wausau, Wis. Filed Oct. 15, 1930. 16 claims. (Cl. 252-7). Waste sulphite liquor is precipitated with lime and the precipitate is cooked under steam pressure.

1,848,473. Screen shaker. Sidney B. Gorbutt, assignor to Electric Steel Foundry Company, Portland, Oreg. Filed Jan. 21, 1930. 1 claim. (Cl. 92-33).

1,848,583. Machine and process for making corrugated board. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed July 23, 1931. 12 claims. (Cl. 154-33).

1,848,602. Manufacture of wood pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed Dec. 23, 1924. 7 claims. (Cl. 92-11). Wood is subjected to a preliminary solubilizing action and then mechanically disintegrated.

1,848,610. Process of making paper and product thereof. Oscar Erf, Columbus, Ohio. Filed July 9, 1929. 3 claims. (Cl. 92-9). Use of immature green fibrous plants.

1,848,658. Manufacture of paper. Harold R. Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Apr. 8, 1929. 47 claims. (Cl. 92-21). Use of an alkaline filler.

1,848,659. Manufacture of paper. Harold R. Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Apr. 8, 1929. 48 claims. (Cl. 92-21). Use of a carbonate filler.

1,848,686. Wall paper. Edward F. Arnold, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Jan. 2, 1921. 24 claims. (Cl. 91-68). A washable wall covering.

1,848,709. Bag and manufacture of the same. Irving Gurwick, assignor to Transparent Packaging and Printing Corporation, New York, N. Y. Filed June 19, 1930. 12 claims. (Cl. 93-35).

1,848,780. Sulphite cellulose digestion. Gustaf Haglund, assignor to Patentaktiebolaget Grondal-Ramen, Stockholm, Sweden. Filed Mar. 31, 1931. 10 claims. (Cl. 92-11).

MARCH 15, 1932

1,849,307. Press loader. William H. Mason, assignor to Masonite Corporation, Laurel, Miss. Filed Nov. 13, 1930. 22 claims. (Cl. 92-39). The combination with a press of a platen screen.

1,849,334. Process for the production of chemical wood pulp. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed May 1, 1926. 3 claims. (Cl. 92-11). Wood is impregnated with a compound capable of being converted by sulphurous acid into bisulphite.

1,849,369. Heat insulating material. Meyrl M. Frost, assignor to Durowood Industries Incorporated of Detroit, Mich. Filed Mar. 16, 1931. 9 claims. (Cl. 92-21). A molded product.

1,849,556. Paper pulp beating machine, hollander, refiner and the like. Clifford Dommett Sheldon, London, England. Filed Dec. 3, 1929. 9 claims. (Cl. 92-24).

1,849,861. Apparatus for forming paper containers. Edward C. Angell, New York, N. Y. Filed Nov. 10, 1930. 10 claims. (Cl. 93-49).

1,849,866. Vessel for treating fibrous material. Joaquin Julio de la Roza, Sr., Tuinucu, Cuba. Filed Dec. 16, 1929. 1 claim. (Cl. 92-7).

1,849,869. Roofing material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed June 30, 1920. Renewed July 5, 1927. 4 claims. (Cl. 108-7).

MARCH 22, 1932

1,850,139. Papermaking composition. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed May 22, 1928. 5 claims. (Cl. 92-3). A mixture of an unbeaten and a highly beaten pulp.

1,850,164. Manufacture of paper boxes. Champe S. Andrews, assignor to Box Blank Corporation, New York, N. Y. Filed Jan. 10, 1930. 8 claims. (Cl. 93-41).

1,850,231. Pulp grinding stone. Wallace W. Greenwood, assignor to Norton Company, Worcester, Mass. Filed Aug. 6, 1924. 31 claims. (Cl. 51-207). Artificial pulp stone.

1,850,301. Paper reenforcing machine. George E. Gibbs, assignor to American Reenforced Paper Company, Attleboro, Mass. Filed Nov. 8, 1928. 4 claims. (Cl. 154-1).

1,850,329. Carton. Henry L. Metzger, assignor to Fort Orange Paper Company, Castleton-on-Hudson, N. Y. Filed May 30, 1930. 2 claims. (Cl. 229-37). Carton for fragile articles.

1,850,493. Process of forming container closures. Elliott Brewer, assignor to Individual Drinking Cup Company, Inc., Easton, Pa. Filed Mar. 3, 1930. 18 claims. (Cl. 93-1).

1,850,494. Container closure. Elliott Brewer, assignor to Individual Drinking Cup Company, Inc., Easton, Pa. Filed Feb. 21, 1930. 10 claims. (Cl. 215-51).

1,850,600. Recording paper. Francis G. Morehouse, assignor to Radio Corporation of America, New York, N. Y. Filed Dec. 18, 1929. 6 claims. (Cl. 91-68). Heat sensitive recording sheet.

1,850,680. Composition roofing. Harold L. Levin, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Feb. 27, 1929. 11 claims. (Cl. 91-68).

1,850,702. Paper suitable for capacitors and process of making the same. Amos L. Allen, assignor to General Electric Company, Schenectady, N. Y. Filed Jan. 25, 1930. 10 claims. (Cl. 92-20). Thin kraft paper (0.0005 inch thick).

1,850,733. Method of treating paper pulp. William K. Talbot, assignor to Ossian Anderson, Everett, Wash. Filed Oct. 8, 1925. 2 claims. (Cl. 34-24). Pulp is loosely divided and dried.

1,850,791. Felt component and process of making same. Pierre Drewsen, assignor to The Barrett Company, New York, N. Y. Filed Feb. 16, 1926. 1 claim. (Cl. 92-14). Flax fibers are subjected to mechanical and chemical disintegration in alkaline solution.

1,850,808. Method of treating and seasoning paper. William R. Redd, assignor to National Paper Napkin Mfg. Company, Chicago, Ill. Filed Dec. 3, 1931. 2 claims. (Cl. 8-2). Method of sterilizing, deodorizing and bleaching paper, using ultra-violet rays and ozone.

1,850,832. Process of separating wood fibers. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed June 13, 1925. Renewed June 27, 1928. 6 claims. (Cl. 92-20). Steam is introduced with the chips into the grinder.

1,850,895. Paper like material. Victor Owen Robinson, assignor to Robinson & Sons, Limited, Chesterfield, England. Filed Oct. 23, 1929. 2 claims. (Cl. 154-54). A pad of soft fibrous material attached to a relatively tough and waterproof backing.

1,850,975. Method of making hypochlorite solutions. John C. Baker, assignor to Wallace and Tiernan Products, Inc., Belleville, N. J. Filed Apr. 11, 1927. 10 claims. (Cl. 23-86). Chlorine and alkali are used.

MARCH 29, 1932

1,851,008. Preparation of alpha cellulose pulp by attrition. Hugo H. Hanson and Stewart E. Seaman, assignors to Eastern Manufacturing Company, South Brewer, Me. Filed Apr. 28, 1927. 8 claims. (Cl. 92-20). Air dry cellulosic material is subjected to impact-attrition.

1,851,060. Process and machine for making bags. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed Dec. 16, 1930. 4 claims. (Cl. 93-19).

1,851,061. Process and machine for making envelopes. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed Feb. 2, 1931. 12 claims. (Cl. 93-19).

1,851,156. Bark removing machine. De Lona Calahan, Fairfax, Wash. Filed July 17, 1928. 4 claims. (Cl. 144-208).

1,851,176. Paper manufacture. Arthur R. Harvey, assignor to The Gardner and Harvey Company, Middletown, Ohio. Filed June 13, 1930. 20 claims. (Cl. 92-40). Formation of an emulsion of a pitchy binder for paper manufacture.

1,851,177. Method of making resin coated pulpboard. Harold C. Harvey and Hubert L. Becher, assignors to The Agasote Millboard Company, Ewing Township, N. J. Filed Aug. 4, 1928. 1 claim. (Cl. 154-2).

1,851,191. Pulp screw press. Richard T. Lang, assignor to American Voith Contact Company, Incorporated, New York, N. Y. Filed Feb. 11, 1927. 1 claim. (Cl. 100-48).

1,851,287. Paper container with nonbuckling flanged head and process of making same. Arlington Moore, Worcester, Mass. Filed Jan. 26, 1924. 9 claims. (Cl. 229-5.6).

1,851,300. Strip shingle and method of making the same. Bernard C. Beckman, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed May 28, 1930. 1 claim. (Cl. 91-68).

1,851,330. Material for conversion to cellulose derivatives and process of producing same. George A. Richter, Milton O. Schur and Royal H. Rasch, assignors to Brown Company, Berlin, N. H. Filed Oct. 9, 1926. 12 claims. (Cl. 260-146). Mercerized wood fiber in a fluffed condition resembling cotton linters.

1,851,390. Pulp shredding apparatus. Richard D. Kehoe, New York, N. Y. Filed Dec. 6, 1928. 9 claims. (Cl. 92-20).

1,851,441. Yarn and method of making the same. William Nanfeldt, assignor to World Bestos Corporation, Paterson, N. J. Filed Apr. 23, 1926. 22 claims. (Cl. 117-53). Paper yarn.

1,851,522. Production of cellulose pulp. Roger W. Richardson and Clarence S. Sherman, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Apr. 13, 1931. 3 claims. (Cl. 92-11). Highly resinous wood is treated with ammonium and calcium bisulphites and sulphurous acid.

1,851,605. Delivery mechanism for paper rolls in paper making machines. Charles W. Valentine and Alfred F. Helin, assignors to The Bagley and Sewall Company, Watertown, N. Y. Filed Oct. 15, 1927. 12 claims. (Cl. 242-66). Winder.

1,851,648. Machine for making cellophane bags. Thomas M. Royal, Philadelphia, Pa. Filed June 5, 1929. 12 claims. (Cl. 93-18).

1,851,751. Method of and apparatus for supplying power in connection with paper manufacture. Henri G. Chatain, assignor to Hammermill Paper Company, Erie, Pa. Filed Mar. 29, 1930. 17 claims. (Cl. 92-38). Use of exhaust steam in drying paper.

1,851,811. Cleaning and polishing paper. Robert A. Christie, assignor to Papercraft Corporation, Elkins Park, Pa. Filed Mar. 28, 1930. 2 claims. (Cl. 15-214). Crepe paper containing cleaning composition.

1,851,941. Paper making machine. Thomas H. Broadhurst, assignor to Charles Walmsley & Company (Canada), Limited, Montreal, Canada. Filed July 21, 1928. 7 claims. (Cl. 92-44). Machine equipped with a laterally moving table. 2 claims. (Cl. 144-208).

SECTION OF THE
COST ASSOCIATION OF THE PAPER INDUSTRY
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THE AMERICAN PAPER AND PULP ASSOCIATION
Edited by Thos. J. Burke C.A. Sec.-Treas.

Adequate Administrative Control*

By Dwight Farnham[1]

Industrial Management During the Depression

At the present moment industrial and commercial organizations, financial institutions and transportation companies are laboring under the most serious strain of all time. Fundamentally this is the result of the greatest of all wars, during which for over five years the world's capital and its productive capacity were destroyed in unprecedented quantities. We are now engaged in replacing this capital by hard work and by practicing economy and efficiency. During this period the wise, the strong and the thrifty will survive. This applies to corporations as well as to individuals. Meantime management is on trial.

No government, corporation or individual can exist indefinitely on credit. Continued existence, as well as credit, depends upon the maintenance of expenditure within the limits of income. Otherwise indebtedness increases, credit diminishes and bankruptcy results. In other words the budget must be balanced. There are two ways of doing this:

1—By increasing income
2—By decreasing expenses

Both of these expedients present complications. The simpler forms of retrenchment such as ruthless wage cuts and drastic reductions of operating and capital expenditures still further reduce the purchasing power of a public already suffering from loss of capital and of income. Retrenchment carried to an extreme seriously impairs the vitality of an organization and weakens its power of recovery. Great intelligence is required to draw the line between necessary economy and destructive retrenchment. In a time like the present there is a vital necessity for exhausting every possible method of increasing income before carrying retrenchment to the point where it threatens destruction. From every depression there have emerged corporations and individuals strengthened by the ordeal by fire which has consumed the false and the inadequate. Good management is now at a premium and the surviving type of manager is the man who decreases expenses to the limit beyond which retrenchment becomes destructive, analyzes his field of constructive activity, formulates a wise business policy and then coordinates and inspires his entire organization for a supreme and sustained effort to increase income.

Early in the last century when a master workman or a merchant and his few assistants constituted a business whose extent was limited to a few square miles by the difficulties of transportation and communication, personal experience, slowly absorbed by the owner in the course of his lifetime, was sufficient guide to business policy. As the speed of transportation and communication increased the size of markets and of industrial and commercial units increased. Markets became national and international. One man's lifetime became too brief to absorb a knowledge of the needs and desires of millions governed by vast differences of environment, climate and social history. Organized research became necessary to determine the materials and products best adapted to satisfy these needs and desires and to determine the most effective method of presenting the materials and products required.

The need for research has increased as distribution has widened and the size of the industrial and commercial unit has increased. Research has bred new materials and new products which in turn have bred further research. The field of research has extended from the material and the product to the market, to methods of presenting the product, to methods of creating needs and desires and to methods of controlling the business. A definite technique of research has developed in each of these fields. Experts in the application of this technique have developed professional associations each one with its literature and its places of meeting. When this technique is properly applied facts are developed which enable the management of an industry to formulate policies of operation which are infinitely more sound than policies reached by argument or by the exercise of arbitrary power. And there has never been a time in the history of business when sound policies of operation were so essential as at present.

Analysis of Management

As the need for research has increased, the functions of management have become more clearly defined and the functionalization of management has increased. At the present time it is generally agreed that management may be separated into two principal functions:

1—Administrative Management—which is principally concerned with the determination of policies and methods of operation on a basis of facts collected in accordance with an established technique.

2—Executive Management—which is principally concerned with the motivation of the organization to make effective the policies decided upon.

* This article is presented by courtesy of The Yale Scientific Magazine.
[1] Manager, Industrial Department, Peat, Marwick, Mitchell & Co.

Once the policy or method is determined by means of the exercise of the administrative function the organization is inspired to carry out this policy by means of the exercise of the executive function. The administrator collects and analyzes the facts, the executive is the practical psychologist who applies the stimulus to the personnel of the organization required to obtain the coordinated team play necessary to secure the best results.

Administrative Management and Research

Administrative management then is concerned with the collection, classification and analysis of facts, with the interpretation of these facts in the light of sound business judgment and with the formulation of wise business policy. Since the collection, classification and analysis of facts are matters of pure research it is quite evident that research constitutes a very important part in modern management.

Both administrative and executive management exist throughout all the subdivisions of management. In the paragraphs which follow the application of the administrative function is indicated in the three principal divisions of:

1—Financial Management
2—Sales Management
3—Production Management

The capital letters in brackets following each activity described refer to explanatory notes placed at the close of each subdivision.

Application of Administrative Research to the Three Principal Divisions of Management

FINANCIAL MANAGEMENT: In this division administrative research includes:

A—Accounting—which is concerned principally with the preparation of the balance sheet which is the statement of assets and liabilities, with the profit and loss account which is the statement of earnings and with the books and accounts required for their preparation. (C)

B—Financial Analysis—which is concerned with the control of financial management through the analysis of balance sheets and profit and loss accounts by means of ratios and operating percentages.

C—Cost Accounting—whose object is to secure and maintain a minimum cost of manufacture, of sales and of administration by means of the comparisons of actual costs of operation with carefully determined standards. (C)

D—Budgeting—which is concerned with balancing income and expenditure for the purpose of maintaining a margin in favor of the former. (C)

E—Economic Research—which covers the collection and analysis of statistics in regard to all important matters having a bearing upon the business which must be given consideration in connection with the formulation of financial policy. Under this heading may be included estimates of the profitability of new ventures and similar matters involving financing. (C) In certain of the larger companies the economist is a highly paid specialist who reports direct to the general management.

Note: The comptroller (C) is usually responsible for the activities above and for the presentation to the management of the related statement and reports required for administrative control. From a financial standpoint the comptroller is fundamentally responsible for "recording" and analysing while the treasurer is responsible for "safeguarding."

2—SALES MANAGEMENT: In this division are included

A—Market Research—which is concerned with the preparation of statistics showing the number, purchasing power and varieties of the population forming the existing or potential market for the products of the company, the transportation facilities, the geographical divisions, climatic conditions and the like. (M.A.)

B—Customer Analysis—which is concerned with the determination of the requirements, present or potential, of various classes of customers, with their preferences and with their possibilities as distributors or consumers of various sorts, qualities and priced goods, whose distribution the company undertakes or may undertake. Customer analysis usually includes also an historical examination of past and present customer accounts. (M.A.S.C.)

C—Fashion Research—which is concerned with the determination of existing fashions of goods required and of the probable future trend. (S.A.M.)

D—Product Analysis—which is concerned with the analysis of the company's products to determine their conformity to the requirements disclosed by A, B, and C, and with possibilities for improvement. (T.S.A.M.)

E—Package Analysis—to determine the most attractive method of presenting the product. (S.T.A.M.)

F—Distribution Analysis—to determine the most effective method of distribution—through jobbers, retailers, direct, etc. (M.A.)

G—Competitive Analysis—which is concerned with the analysis of competitors' products, policies, methods and activities. (M.A.)

H—Sales Analysis—which is concerned with the analysis of present and past sales, geographically, by population units, territories, salesmen, by classes of outlets, by classes of consumers, by classes of goods and by seasons. (C.M.)

I—Analysis of Sales Expense—which is concerned principally with salesmen's expense accounts, the remuneration of salesmen, cost per call, cost of supplies, of communication, etc. (C.)

J—Advertising Research—which is concerned with the most effective method of informing the customers comprising the company's market of the existence and desirability of the company's product. This involves the analysis of advertising mediums, dealer helps, educational material, the preparation of copy and the coordination of advertising with sales activities. (A.M.)

K—Establishment of Sales Quotas—which involves the setting of standards of sales volume by territories after giving consideration to all the facts disclosed by the various analyses described. (M.C.)

Many of the activities described (A to J) are often covered by the term "merchandising" which is used somewhat loosely to indicate the purchase or manufacture of goods which the public will buy and the effective presentation of such goods to the public, often without a very definite idea of the method of arriving at such knowledge.

Note: The comptroller is usually responsible for the maintenance and presentation of certain basic records required in connection with the above activities marked (C) and is in contact with most of the others through costs, budgets, estimates, etc.

The market analyst is usually responsible to the sales manager for all or part of those activities marked (M), the advertising counsel for parts of those marked (A), the stylists for those marked (S) and the technical engineers (chemists, mechanical engineers, etc.) for those marked (T).

3—PRODUCTION MANAGEMENT—In this division administrative research includes:

A—Technical Research—which is concerned with the chemical, physical and mechanical analysis of materials and products, in order to maintain quality to develop new products, and to reduce production costs. (T.)

B—Plant Standardization—which is concerned with the determination of the most effective buildings, machinery and equipment and with their arrangement to the best ad-

vantage to serve the purpose for which they are intended. (T.I.)

C—Labor Standardization—which is concerned with the determination of the amount of work reqiured to perform stated operations, with the determination of the training, qualities, etc., which best fit an operative to perform such work and with the provision of proper incentives to insure its most effective performance. (I.P.)

D—Production Control—which is concerned with the determination of the most effective way of combining plant, materials and labor for purposes of production and with providing for the continuation of such combination in order to insure minimum cost of production, maximum quality and delivery, as required, of the finished product. (I.T.P.C.)

Note: Technical engineers are responsible in whole or in part for activities marked (T), industrial engineers for those marked (I) and personnel men for those marked (P). The comptroller is in contact with all of them in connection with costs, budgets, payrolls, estimates, etc.

Administrative Control

All of these activities involve the collection, classification and analysis of facts. When the conclusions reached, together with the supporting data, are reduced to writing in the form of reports, records, charts and manuals, they form the basis of administrative control since they represent the facts required by modern management for the formulation of intelligent policies of operation. The need for such information as we have outlined is too well recognized by the more progressive industries to require further advocacy. In times like the present the less progressive are discovering the need for the essential facts by bitter experience.

Type of Man Required

The type of man required to organize administrative control is the man with the factual mind—the man who can collect, test, classify and analyze facts. This requires training in research such as is acquired by the engineer and the accountant.

Although a complete knowledge of accounting or of any branch of engineering may rightly be considered a life's work, nevertheless the president of a modern corporation must make daily decisions based upon the reports of engineers and accountants. The information received from the specialists in the financial, sales and production departments must be coordinated. The president must be assured that one report does not contradict another. He must be sure that the figures presented are correct. He must know what effect, action upon a basis of a report originating in the production or sales department, will have upon assets, earnings and financial conditions. Furthermore in order to avoid unnecessary expense he must see that figures are not duplicated in several departments.

Making One Department a Clearing House

Finally, the president of a great corporation must deal directly with as few subordinates as possible in order so to conserve his time as to enable him to give careful and unhurried thought to the larger problems of his business and to maintain personal contacts with the leaders in industry and finance. As industry has grown there has been a distinct trend toward making one department a clearing house for a considerable portion of the administrative control data from the financial, sales, and production departments.

The Comptroller's Part in Administrative Control

The department selected has quite naturally been that of the comptroller for several reasons which may be briefly stated as follows:

1—The president of a large corporation is responsible to his directors and stockholders for the property entrusted to him and for the earnings of the business. Since directors and stockholders judge him principally by the facts presented in the balance sheet and the profit and loss statement, he watches these statements and the subsidiary statements prepared by the comptroller's department very closely.

2—Since such statements are examined and commented upon annually by professional accountants, the president comes to rely quite naturally upon the correctness of the figures presented by the comptroller's department.

3—Accounting and cost accounting cover every phase of the business so that when figures relating to any portion of it are required, the president naturally turns to the comptroller's department.

4—The budget and the financial analysis, which govern the operation of the business are prepared in the comptroller's department. Unless the company has an economist most of the economic research is likely to be done in the comptroller's department, including estimates covering new ventures.

5—Certain figures essential to administrative control in the sales department are prepared in the comptroller's department such as those required for the sales analysis (2h), for the analysis of sales expense (2i), for the establishment of sales quotas (2k), and some of those required for customer analysis (2b).

6—Certain figures essential to administrative control in the production department are usually prepared in the comptroller's department such as those pertaining to the cost of technical research (3a), of plant standardization (3b), and of labor standardization (3c).

7—The preparation of figures by the comptroller's department, which is equipped for such work with machines and trained personnel, does not detract from the prestige of other departments, provided the matter is handled diplomatically and the comptroller possesses sufficient knowledge of the needs and general operation of the sales and production departments to cooperate to the advantage of all concerned.

The Need for the New Type of Comptroller

The type of comptroller we have described, who can insure the prompt and accurate presentation of the coordinated facts and figures required for effective administrative control, is a somewhat recent development, although the need has existed for a considerable period. His arrival was delayed by the idea which was prevalent before the rise of the great corporation, that a comptroller was a sort of head bookkeeper who must know every detail of bookkeeping. The belief also existed that such a man must necessarily be so specialized and narrow in his outlook that he could not possibly understand the larger problems of the business which arise in connection with sales, production and finance.

Increased Interest in Accounting

This idea is gradually disappearing especially in the more progressive corporations where the value of research has been demonstrated and the necessity for the accurate economical and coordinated reports required for adequate administrative control has been proved. Another constructive factor has been the increased interest in accounting and its study by men of greater education and of higher calibre.

A thorough knowledge of the principles of accounting is a necessity for the successful comptroller. A knowledge of the principles of finance, sales and production is also necessary if the comptroller is to occupy the position described and act as the chief executive of the department

which supplies the management with the facts necessary for adequate administrative control.

The men occupying such positions have reached them through the accounting and auditing department, through the sales department and through the production department. They are former accountants, former industrial and technical engineers and former market research men. Accounting has become an important part of the curriculum in our schools of business administration and college graduates are joining accounting firms to learn the essentials of business. Conversely, accountants are taking a greater interest in finance, sales and production. Only recently, in response to a recognized need for a clearing house for ideas among such men, a Comptrollers' Council was organized as a division of the American Management Association.

The type of comptroller we have described has become one of the most important factors in management. He is the man who can supply the facts. His business judgment has improved as his outlook has broadened. He has become the right hand man of the president in all matters pertaining to the formulation of general policy affecting earnings and assets. He supplies much of the data required for the administrative control of sales and production. He prepares the budget. He is becoming the financial authority in the organization, on a par with the sales manager and the manufacturing manager, and as such is quite as likely to become a vice-president. His advent marks definitely the transition from management based upon opinion, argument and prejudice to management based upon facts. And never in the history of American business has there been a greater need for management based upon facts, reason and wisdom.

Indianapolis Paper Market Spotty

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 23, 1932—While some paper is being sold in the local market, conditions continue spotty, some days seeing a fair volume of small orders and other days being extremely quiet. There are no large orders being placed for any grade of paper. The users are content to follow the practice of hand to mouth buying and let the manufacturers and jobbers carry their stocks for them. The price situation, particularly in the sulphite bond market, is shaky. The situation is comparable in many ways to the kraft situation of some weeks ago. Right now kraft prices are pretty firmly held in spite of a reported decrease in production and a similar decrease in consumption as compared with a year ago. The ground wood and news print situation remains unchanged. As has been true for the last year or more, the papers in the industrial centers seem to be harder hit than the small dailies and weeklies in the farming centers.

Board mills in this state are working about half time or perhaps less, with no indications of any increased production. Executives say there are some small orders but no sustained demand that would warrant more production than present schedules. Local jobbers of building papers report that with the coming of real spring weather there has been an increased interest in their products. Dealers are not carrying adequate stocks even for the limited amount of building being done and are compelled to buy frequently, even if the individual orders are small.

The lateness of spring this year has affected, adversely, the container demand from the ice cream trade. Most of the orders being received are being filled from warehouse stocks, the factories producing very small quantities. It is expected that this demand will improve materially in another week or two.

COST SECTION

New York Trade Jottings

R. T. Houk, vice-president of the Mead Corporation, of Dayton, Ohio, is a New York visitor this week.

* * *

Russell McCandless, wood pulp importer and dealer in paper mill supplies, has removed his offices at 230 Park Avenue, New York, to Rooms 943-944 in the same building.

* * *

Harry Porter, sales manager of the Harris-Seybold-Potter Company, who has recovered from his recent severe illness, has been looking up his friends in New York.

* * *

Floyd L. Carlisle, president of the St. Regis Paper Company, is one of the members of a committee, composed of bankers and industrialists, formed for the purpose of considering methods of making the large funds now being released by the Federal Reserve Banks useful affirmatively in developing business.

* * *

American Writing Paper Company, of Holyoke, Mass., entertained a group of fifty printing instructors, educational executives, and apprentices from New York last week end. Although the plant does not usually run on Saturdays, the company arranged to have its mills in operation for the inspection of its New York guests.

* * *

Harry E. Lindquist, for the past year associated with the Frank L. Scott Company, New York, has severed his connection with that organization. Mr. Lindquist has for many years specialized in the production of board specialties. He has made no definite plans for the future, but anticipates being identified with the grades which he has so long promoted. His home address is 65 Parker Avenue, Larchmont, N. Y.

* * *

Dr. Virgil Jordan, who was for several years economist for the National Industrialist Conference Board, and is now economist for the McGraw-Hill Company, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at Allerton House, New York, on Monday. Dr. Jordan analysed prevailing business conditions in an informative manner, and discussed the factors responsible for the current depression at length. He also expressed his opinion in regard to the future outlook, and discussed steps to bring about better conditions.

Rialto Mill Destroyed by Fire

RIALTO, Ohio, May 23, 1932.—The Fox Paper Company's country plant, known as the Rialto Mill, was destroyed by fire this morning. Various classes of packing paper, blotting paper and building paper were manufactured at this plant.

C. R. Walker, vice-president of the company, however, announces that all of these grades will be manufactured at the main Lockland mill of the company and that there will be no interruption whatsoever in serving clients on the grades that were formerly made at Rialto.

Fire Destroys Sulphite at Westbrook

[FROM OUR REGULAR CORRESPONDENT]

WESTBROOK, Me., May 31, 1932.—Fire destroyed a storehouse and a substantial quantity of bleach sulphite owned by the S. D. Warren Company here recently. The loss, which was considerable, was covered by insurance.

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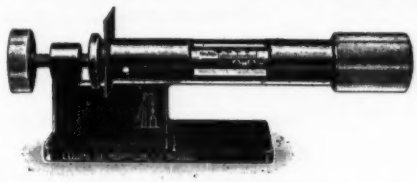

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NEW YORK IMPORTS

WEEK ENDING MAY 21, 1932

CIGARETTE PAPER

Liggett & Myers Tobacco Co., Lafayette, Havre, 13 cs.; Standard Products Corp., Lafayette, Havre, 60 cs.; Champagne Paper Corp., Lafayette, Havre, 13 cs.; Champagne Paper Corp., Collamer, St. Nazaire, 77 cs.; De Manduit Paper Corp., Collamer, St. Nazaire, 1112 cs.; American Tobacco Co., Collamer, Bordeaux, 220 cs.; Standard Products Corp., Berengaria, Southampton, 29 cs.

WALL PAPER

Guaranty Trust Co., Hamburg, Hamburg, 5 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Amer. Banker, London, 4 bls, 1 cs.; Whiting & Patterson Co., Inc., Berengaria, Southampton, 3 bls.

NEWS PRINT

Jay Madden Corp., Amer. Shipper, Hamburg, 174 rolls; Jay Madden Corp., Berlin, Bremen, 792 rolls; ———, Berlin, Bremen, 63 rolls; W. H. Bell, Markland Liverpool, N. S., 3326 rolls; Parsons & Whittemore, Inc., Minnequa, Stockholm, 200 rolls; Dunham & Reeve, Minnequa, Helsingfors, 142 rolls; Perkins Goodwin & Co., St. Louis, Hamburg, 22 rolls.

PRINTING PAPER

E. Dietzgen & Co., Statendam, Rotterdam, 30 cs.; E. Dietzgen & Co., Hamburg, Hamburg, 36 cs.; P. Puttmann, Pennland, Antwerp, 22 cs.; Jay Madden Corp., Minnequa, Helsingfors, 56 rolls, 41 bls.

PARCHMENT PAPER

F. C. Strype, Pennland, Antwerp, 3 cs.

WRAPPING PAPER

Yardley & Co., American Banker, London, 1 cs.; National City Bank, Cristobal, Colon Bilbao, 55 bls.

KRAFT PAPER

———, Hamburg, Hamburg, 21 bls.

PACKING PAPER

C. Bloom, Inc., Berengaria, Southampton, 1 cs.; American Express Co., Cabo Mayor, Genoa, 40 bls.

FILTER PAPER

R. Reeve Angel & Co., Inc., Amer. Banker, London, 3 cs.; General Printing Ink Corp., Lisbon Maru, Tokio, 2 cs.; H. Reeve Angel & Co. Inc., Berengaria, Southampton, 5 cs.

FILTER MASSE

J. Manheimer, Bremen, Bremen, 50 bls.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Baltic, Liverpool, 3 cs. (simplex); C. W. Sellers, Bremen, Bremen, 3 cs.; L. A. Consmiller, Bremen, Bremen, 6 cs.; American Express Co., Bremen, Bremen, 2 cs.; C. W. Sellers, Hamburg, Hamburg, 2 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Bremen, Bremen, 17 cs.

METAL COATED PAPER

Winter Wolff & Co., Statendam, Rotterdam, 167 cs.; Globe Shipping Co., Berlin, Bremen, 18 cs.; K. Pauli Co., Hamburg, Hamburg, 9 cs.; Taub Hummell & Schnall, Hamburg, Hamburg, 3 cs.; Globe Shipping Co., St. Louis, Hamburg, 19 cs.; Taub Hummell & Schnall, Pr. Roosevelt, Hamburg, 4 cs.

BARYTA COATED PAPER

Globe Shpiping Co., Berlin, Bremen, 122 cs.

BASIC PAPER

Globe Shipping Co., Berlin, Bremen, 2 crates.

SURFACE COATED PAPER

P. C. Zuhlke, Pennland, Antwerp, 2 cs.; Gevaert Co. of America, Pennland, Antwerp, 62 cs.; International F'd'g Co., Hamburg, Hamburg, 4 cs.; Phoenix Shipping Co., Pr. Roosevelt, Hamburg, 31 cs.

PHOTO PAPER

J. J. Gavin Co., Berengaria, Southampton, 5 cs.

TISSUE PAPER

Old Master Paper & Pulp Co., Amer, Shipper, Hamburg, 9 cs.; B. F. Drakenfeld & Co., Baltic, Liverpool, 1 cs.; F. B. Vandegrift & Co., Baltic, Liverpool, 10 cs.; W. J. Byrnes, Berengaria, Southampton, 4 cs.

COLORED PAPER

F. Murray Hill Co., Amer. Shipper, Hamburg, 3 cs.; F. Murray Hill Co., Pr. Roosevelt, Hamburg, 4 cs.; S. Gilbert, Berlin, Bremen, 2 cs.; E. Dietzgen & Co., Hamburg, Hamburg, 156 cs.

BOWL PAPER

Hurley Johnson Corp., Baltic, Liverpool, 4 bls.

STENCIL PAPER

Wedeman Godknecht & Lally, Hamburg, Hamburg, 5 cs.

FELT PAPER

Heemsoth Baase & Co., Statendam, Rotterdam, 9 bls.

DESIGN PAPER

Wilkesbarre Lace Co., Baltic, Liverpool, 1 cs.

LITHO PAPER

International Printing Ink Corp., Wichita, Canton, 20 cs.

GUMMED PAPER

Heemsoth Basse & Co., Bremen, Bremen, 4 cs.

CARD BOARD

Coty Co., Lafayette, Havre, 56 cs.; Hensel Bruckman & Lorbacher, Hamburg, Hamburg, 4 cs.; Hermann & Co., Berengaria, Southampton, 3 cs.

PASTE BOARD

R. Reimer, Inc., Berlin, Bremen, 13 cs.

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Super Calenders
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Embossing Calenders
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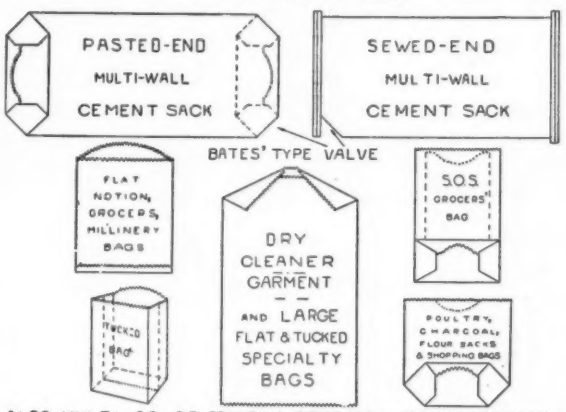

PASTED-END MULTI-WALL CEMENT SACK
SEWED-END MULTI-WALL CEMENT SACK
BATES' TYPE VALVE
FLAT NOTION, GROCERS, MILLINERY BAGS
DRY CLEANER GARMENT — AND LARGE FLAT & TUCKED SPECIALTY BAGS
S.O.S. GROCERS' BAG
POULTRY, CHARCOAL, FLOUR SACKS & SHOPPING BAGS

ALSO MULTI-COLOR PRINTING PRESSES – COMPENSATORS – BOTTOMERS – GLUING – PASTING – PAPER WAXING MACHINERY, ETC.

POTDEVIN MACHINE CO.
1223 38TH STREET BROOKLYN, N.Y. U.S.A.

LAND O'LAKES
CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
New York City - Chicago - Boston - Philadelphia - Pittsburgh - Syracuse

MISCELLANEOUS PAPER

Steiner Paper Corp., Statendam, Rotterdam, 6 cs.; Keuffel & Esser Co., Statendam, Rotterdam, 4 cs.; Walker Goulard Plehn Co., Statendam, Rotterdam, 4 bls.; Corn Exchange Bank Trust Co., Sanyo Maru, Osaka, 26 cs.; J. Romer, Sanyo Maru, Osaka, 7 cs.; C. L. Voorhees, Canyo Maru, Yokohama, 3 cs.; R. Reeve Angel & Co., Inc., Canyo Maru, Yokohama, 10 cs; Japan Paper Co., Pr. Hoover, Kobe, 24 cs.; C. L. Voorhees, Pr. Hoover, Yokohama, 4 cs.; R. H. Macy & Co., Lafayette, Havre, 2 cs.; Keller Dorian Paper Co., Lafayette, Havre, 5 cs.; ———, Hamburg, Hamburg, 1609 rolls.

RAGS, BAGGINGS, ETC.

Amtorg Trading Corp., Exmoor, Odessa, 1704 bls. rags; E. J. Keller Co. Inc., American Shipper, ———, 122 bls. rags; S. Birkenstein & Son, Cypria, Barcelona, 148 bls. rags; ———, Cypria, Barcelona, 49 bls. bagging; ———, Cypria, Barcelona, 90 bls, rags; Castle & Overton, Inc., Korsholm, B. Ayres, 205 bls, scrap hessians; Bank of N. Y. & Trust Co., Caledonia, Glasgow, 97 bls, rags; T. D. Downing & Co., Caledonia, Glasgow, 66 bls. bagging; ———, Excelsior, Algiers, 46 bls. rags; E. J. Keller Co., Inc., Collamer, ———, 100 bls, rags; The Barrett Co., Collamer, St. Nazaire, 124 bls, rags; National City Bank, Cabo Mayor, Barcelona, 160 bls. rags; Martanco Stamp Co., Baltic, Liverpool, 7 bls. waste paper.

HIDE GLUE

———, Vulcania Trieste, 430 bags.

OLD ROPE

National City Bank, Amer. Banker, London, 72 coils; Banco Com'l. Italiane Trust Co., Cristobal, Colon, Bilbao, 138 coils; Brown Bros. Harriman & Co., Cristobal, Colon, Coruna, 32 coils; E. J. Keller Co., Inc., Cabo Mayor, ———, 167 coils; E. J. Keller Co., Inc., Hamburg, ———, 33 coils.

WOOD PULP

Castle & Overton, Inc., Statendam, Rotterdam, 125 bls. wood pulp; Gottesman & Co., Inc., Statendam, Rotterdam, 1200 bls. sulphite; Irving Trust Co., Berlin, Bremen, 375 bls. wood pulp; Lagerloef Trading Co., Minnequa, Helsingfors, 3680 bls, sulphate, 633 tons; 130 bls, wood pulp, 26 tons; Castle & Overton, Inc., Minnequa, Helsingfors, 2595 bls. Chemical pulp, 517 tons; Atterbury Bros., Inc., Minnequa, Helsingfors, 330 bls. wood pulp, 55 tons; Gottesman & Co., Inc., Ida, Sebenico, 6160 bls. wood pulp; Castle & Overton, Inc., Sac City, Rotterdam, 543 bls. wood pulp, 106 tons; Castle & Overton, Inc., Hamburg, Hamburg, 1680 bls. wood pulp, 336 tons; N. Y. Trust Co., Pr. Roosevelt, Hamburg, 500 bls. sulphite.

WOOD PULP BOARDS

Lagerloef Trading Co., Minnequa, Helsingfors, 279 bls., 38 tons.

WOOD FLOUR

The Burnet Co., Statendam, Rotterdam, 360 bags; State Chemical Co., Statendam, Rotterdam, 300 bags.

BOSTON IMPORTS

WEEK ENDING MAY 21, 1932

M. M. Graves Co., Caledonia, Glasgow, 166 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING MAY 21, 1932

Congoleum-Nairn Co., Collamer, St. Nazaire, 123 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING MAY 21, 1932

Castle & Overton, Inc., Rio, Hamburg, 1100 bls. wood pulp; Hibernia Bank & Trust Co., Rio, Hamburg, 193 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 21, 1932

Amtorg Trading Corp., Exmoor, Odessa, 330 bls. rags; Lagerloef Trading Corp., Minnequa, Helsingfors, 5152 bls. sulphite, 1013 tons; 260 bls, mechanical pulp, 52 tons; Castle & Overton, Inc., Minnequa, Helsingfors, 2203 bls. chemical pulp, 440 tons; Lancaster News, Minnequa, Helsingfors, 211 rolls news print; Jay Madden Corp., Minnequa, Helsingfors, 111 rolls news print; Paper House of Penna., Minnequa, Helsingfors, 43 rolls news print; 22 bls, printing paper; E. J. Keller Co., Inc., Excelsior, ———, 66 bls. rags; ———, Excelsior, Algiers, 144 bls. rags; Phila. National Bank, Excelsior, Genoa, 1 bl., 3 cs. tissue paper; N. Y. Trust Co., Riol, Bremen, 250 bls. wood pulp; F. Weber & Co., Riol, Hamburg, 2 cs. printing paper; ———, Riol, Hamburg, 864 bls. wood pulp; Castle & Overton, Inc., Riol, Hamburg, 2200 bls. wood pulp; Castle & Overton, Inc., Collamer, St. Nazaire, 130 bls. rags; Katzenstein & Keene, Inc., Collamer, St. Nazaire, 57 bls. rags; Lang Co., Collamer, St. Nazaire, 219 bls. rags; W. J. Jones Co., Cabo Mayor, Genoa, 3 cs. paper.

CAMDEN IMPORTS

WEEK ENDING MAY 21, 1932

Lagerloef Trading Co., Minnequa, Helsingfors, 7301 bls. sulphate, 1219 tons.

NORFOLK IMPORTS

WEEK ENDING MAY 14, 1932

Paper Makers Importing Co., Inc., Bristol City, 1149 tons, 6 cwt. china clay.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

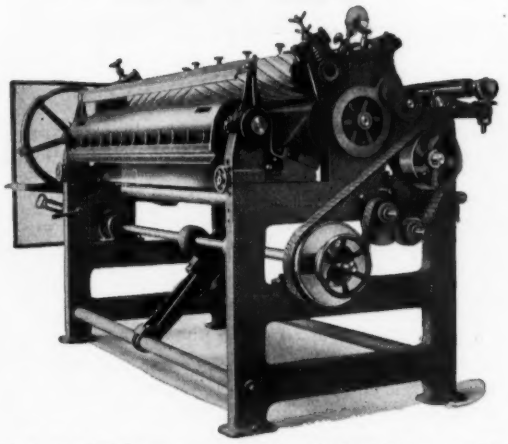
BOSTON, Mass., May 23, 1932.—The May meeting of the New England Paper Merchants Association was held at the Harvard Club of Boston Thursday evening, with a particularly good attendance. President William H. Rourke was in the chair. There were two guest speakers, Arthur Chamberlain, secretary of the National Paper Trade Association, and Thomas Cree, of the Alling & Cory Company, Pittsburgh, Pa.

The executive committee of the Boston Paper Trade Association has worked out a novel program for the annual Spring outing of the organization, which is to be held at the Charles River Country Club, Newton, June 6. Secretary John L. Hobson has sent out advance notices which announce that "the fun starts at 12 noon, D.S.T. Buffet luncheon, golf tournament, sports, including ping-pong, yap, horse shoe pitching and others. Seventy-five dollars worth of prizes for the golfer, seventy-five dollars worth of prizes for the other sports. A bang-up dinner will be served at 7 p.m."

At a sales meeting of the Storrs & Bement Company, at which President W. N. Stetson, Jr., and General Manager John H. Brewer, presided, a new adhesive cellulose product, "Scotch Tape," was discussed. This tape is made by the Minnesota Mining and Manufacturing Company, St. Paul, Minn., primarily for securing transparent cellulose display papers, and used by Storrs & Bement in connection with their Kodapak. In the afternoon several salesmen of the company visited the new home of the Merrymount Press, 712 Beacon street, where D. B. Updike, head of the concern, conducted the party through the plant. He exhibited his marvellous collection of ancient and modern books and rare type specimen pages.

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.

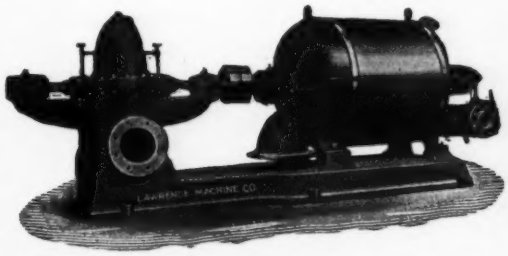
LAWRENCE, MASS.

MAKERS OF
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS,
CUTTER KNIVES, PATENT TOP SLITTERS.

Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.
We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty-four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

Lawrence Machine & Pump Company
361 Market St. Lawrence, Mass.

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

The B.C. QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, May 25, 1932.

During the past week the local paper market was comparatively dull. Demand for the various standard grades of paper is light at present, with few exceptions. Sales forces of the leading paper houses are still conducting a strenuous campaign for new business, and are fairly optimistic. In most instances prices are holding to formerly quoted levels.

The news print market continues quiet. Production is being maintained in sufficient volume to take care of current requirements. The American Newspaper Publishers' Association reports that national advertisers spent $25,000,000 less in newspaper advertising last year than in 1930. The price situation continues unsatisfactory.

Conditions in the paper board market are little changed. Box board operations are proceeding at around 50 per cent of capacity. The fine paper market is fairly steady. Tissues are moving in good volume, but prices are weak. The coarse paper market is showing some improvement and kraft wrapping paper prices are holding up well.

Mechanical Pulp

The ground wood market is exhibiting a fairly strong undertone. Contract shipments are moving at a normal pace for the time of year. Offerings of both imported and domestic mechanical pulp are somewhat limited, due to curtailed production at home and abroad. Prices are generally holding to formerly quoted levels, without difficulty.

Chemical Pulp

Steadiness continues to prevail in the chemical pulp market, although demand for both imported and domestic grades is restricted. The continuation of the Swedish pulp mill workers strike is an important factor in creating the present firm undertone. Inquiries for future needs are fairly numerous, some of which should materialize into good orders.

Old Rope and Bagging

Most of the business transacted in the old rope market during the past week was along routine lines. Demand for both domestic and foreign old manila rope is rather listless. Small mixed rope is only moving slowly. The bagging market is irregular. Demand for scrap and gunny bagging is spotty. Roofing bagging, however, is fairly steady.

Rags

Trading in the domestic rag market is only moderately active. A little more interest is being displayed in one or two grades of cotton cuttings. Roofing stock is in seasonal request. Prices are practically unchanged. The imported rag market is still affected by the fluctuations of foreign currencies and the future outlook is uncertain.

Waste Paper

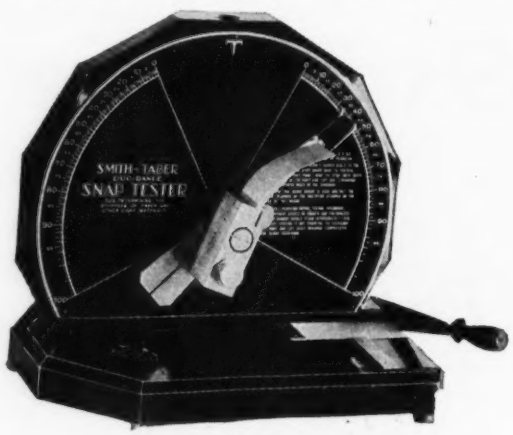
Board mill demand for the lower grades of paper stock is less noticeable than of late. Offerings are limited, however, and quotations are generally well maintained. The better grades of waste paper are holding up well. Soft white shavings are in good request for the season. Book stock is fairly steady. Prices continue to remain at the same levels.

Twine

The local twine market is marking time. Demand for the various grades is fairly persistent considering prevailing business conditions. Supplies are going forward into consumption in moderate volume. No radical price changes have been reported of late, although competition is keen.

Duo-Range Snap Tester

Among the recent developments in paper testing devices is the Duo-Range Snap Tester for the determining of the stiffness of paper and board, manufactured by Smith-Taber, of North Tonawanda, N. Y. With this new Snap Tester a numerical index of the stiffness and body can be obtained within the fraction of a minute's time with as much ease as determining thickness with a conventional



Smith-Taber Snap Tester

type of micrometers. Among its special features is a precision teststrip cutter with set gauges for both length and width of test strip—duo-range weight which doubles the range and usefulness of the instrument. There are no parts to wear and cause inaccurate tests—its rugged design and construction insures years of trouble free service. This instrument is supplied in four sizes, the standard type as illustrated, for folders, ledgers and bristols, one for bonds, book papers, onion skins, etc., one for testing extra heavy bristols, card boards, box board, and another for testing sheet metals up to 16 gauge.

To the

Paper Mill Superintendents

Our representatives will attend your Convention at

BUFFALO

and will be pleased to have you talk the color situation over with them.

HELLER & MERZ CORPORATION

286 Spring Street, New York, N. Y.

BOSTON 35 Hartford St. | CHICAGO 146 W. Kinzie St. | SPRINGFIELD, MASS. 40 Albert St.

PHILADELPHIA—South St. and Delaware Ave. Factory—NEWARK, N.J.

A Unit of American Cyanamid Company

ALUMINUM SULPHATE

(PAPER MAKERS' ALUM)

THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

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Cable Address: Lycurgus, N. Y.

Sales Offices: Buffalo, Chicago, Cleveland, Denver, Los Angeles, Philadelphia, Pittsburgh, Providence, San Francisco, St. Louis.

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Also BAKER & ADAMSON C.P. ACIDS..REAGENTS *and* FINE CHEMICALS

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York | 35 East Wacker Drive Chicago

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THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON. MASS.

Woolen manufacturers since 1856

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, May 25, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Most of the business transacted in the bleaching powder market was along routine lines. The contract movement is fairly satisfactory. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is easier. Domestic standard ground is now quoted at 5 cents and finely ground at 7 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is moderately active. The contract movement is fairly good. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is spotty. Demand is somewhat restricted. Contract shipments are fairly heavy. Imported china clay is quoted at from $11 to $15 per ton, ship side; while domestic paper making clay is selling at from $6 to $11 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Shipments against contract are going forward to the paper mills in fairly good volume. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is weaker. The grades of gum rosin used in the paper mills are now quoted at from $3.35 to $3.85 per 280 pounds, in barrels, at works. Wood rosin is still selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Paper mill demand for salt cake is fairly persistent. Prices remain unaltered. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market continues to exhibit a strong undertone. Contract shipments are moving with regularity. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Demand for starch is only moderately active at present. The contract movement is irregular. Prices remain unchanged, in most instances. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Conditions in the sulphate of alumina market are fairly satisfactory. Prices generally remain unchanged. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is fairly steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Business in the talc market is fairly active. The contract movement is seasonal. Prices are holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	5.00	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.50	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	53.00	@	—
Rolls, spot	53.00	@	—
Sheets	58.00	@	—
Side Runs	38.00	@	42.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	3.25	@	4.00
Southern	3.25	@	4.00
Imported	3.50	@	4.30
Boards—per ton—			
News	24.00	@	25.00
Straw	34.50	@	45.00
Chip	24.00	@	25.00
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	30.00	@	32.50
Sgl. Mla. Ll. Chip	35.00	@	37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	20.00	@	22.00
Dry	22.00	@	24.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.10	@	2.90
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.65
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.50	@	1.65
No. 2 Kraft	1.35	@	1.40
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	2.10	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich	2.40	@	2.55
Kraft (Domestic	1.50	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.50	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.25	@	4.50
New White, No. 2	3.00	@	3.50
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Blue Prints	3.25	@	3.50
New Soft Blacks	2.75	@	3.00
Blue Overall	3.25	@	3.75
Fancy	1.50	@	1.75
Washables	1.25	@	1.50
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.25	@	3.50
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.40	@	3.50
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.50	@	6.00
New White Cuttings	4.75	@	5.00
New Light Oxfords	4.00	@	4.25
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	4.00	@	4.25
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.90	@	2.00
German Blue Linens	1.80	@	1.90
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.10	@	1.20
Domestic	1.15	@	1.25
Wool Tares, light	.90	@	.95
Wool Tares, heavy	.90	@	.95
Bright Bagging	.85	@	.90
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.15	@	2.35
Hard, white, No. 2	1.50	@	1.60
Soft, white, No. 1	1.35	@	1.45
White envelope cuttings	1.70	@	1.80
Flat Stock—			
Stitchless	.65	@	.75
Overissue Mag.	.65	@	.75
Solid Flat Book	.60	@	.65
Crumped No. 1	.45	@	.50
Solid Book Ledger	1.75	@	1.85
Ledger Stock	.60	@	.70
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut.	1.40	@	1.50
New Cuttings	1.15	@	1.25
Extra No. 1 old	1.00	@	1.05
Print	.40	@	.45
Bogus Wrapper	.40	@	.45
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.80	@	.90
News—			
No. 1 White News	1.25	@	1.35
Strictly Overissue	.35	@	.45
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.20	@	.25

H·T BRAND

COATING CLAY—
HIGHEST GRADE FILLING CLAY
The Clay of Uniformity

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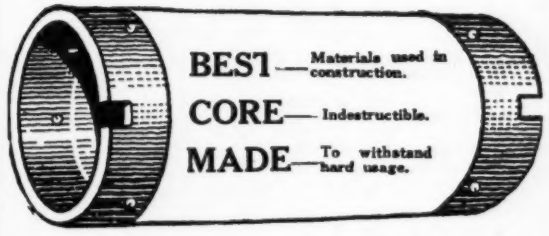
protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

SHIPPING INSURANCE



Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05½	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.40	@	1.45
Ledger & Writings	.55	@	.65
Solid Books	.50	@	.55
Blanks	1.15	@	1.20
Krafts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.45	@	.50
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¼	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.05	@	.05½
New Whitie, No. 2.	.04	@	.04¼
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft.	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	1.90	@	2.00
No. 2 Hard White.	1.75	@	1.80
No. 1 Soft White.	1.60	@	1.70
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.60	@	—
No. 2 Books, light	.45	@	—
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.45	@	—
Container Manila	.40	@	.45
Old Kraft	.90	@	1.00
Common Paper	.20	@	—
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.35	@	.40
Overissue News	.45	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.40	@	1.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.16¼	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.00	@	1.05
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.40	@	1.60
Domestic	1.55	@	1.75
Transmission Rope	—	@	.90
Mixed String	.30	@	.35
Jute Rope	—	@	.85
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.65	@	.80
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	1.00
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.80	@	.90
New Burlap Cutting	.75	@	1.00
Australian Wool Pouches	1.25	@	1.50
Heavy Baling Bagging	1.00	@	1.25
Paper Mill Bagging	.60	@	.70
Bagging No. 2	.30	@	.35
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.04½	@	.04¾
New White No. 2	.03	@	.03¾
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.02¾
New Unbleached	.04½	@	.05¼
Fancy	.03	@	.03½
Washable	.02	@	.02½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04¼
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	.08	@	.08½
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	1.00	@	1.12½
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.53	@	.58
No. 2	.43	@	.48
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.60	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.00	@	1.10
Old Linsey Garments	.65	@	.70

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

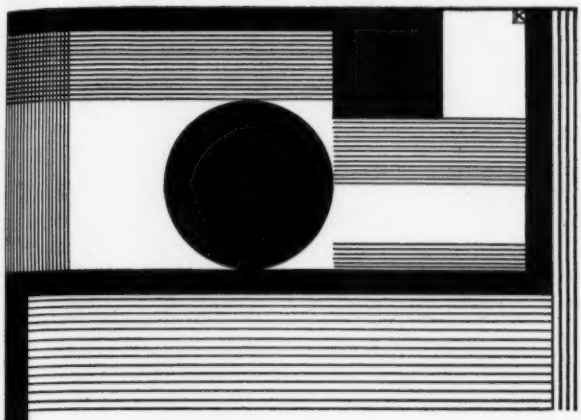
Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock.	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTIETH YEAR

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TABLE OF CONTENTS

Copyright, 1932, by the Lockwood Trade Journal Co., Inc.

International Report Reflects Depression 11
Paper Demand Irregular in Philadelphia 12
Discuss Trade Problems 12
American Mills Paper Co. Moves 12
Whiting Attends Envelope Convention 12
Developing New Gummed Papers 13
Kraft Prices Firm in Indianapolis 13
Finch, Pruyn & Co. Signs Agreement 13
Boston Market Displays Improvement 14
Box Makers to Celebrate 14
Activities of Fox River Valley Mills 15
New General Electric Booklets 15
Canada to Enlarge Pulp Exports to U. K. 16
Price Bros.' Annual Report 16
Flashfold Products Incorporated 16
Chicago Market Marking Time 17
Association Activities 17
Coty Machine Co. Busy 17
Power Project at Abitibi Canyon 18
Holds Papeterie Display 18
Obituary 20
Construction News 22
New York Trade Jottings 24
Editorial 26
TAPPI Fall Meeting Committee 27
Employees Strike at Union Bag Mill 27
Niagara Paper Mills Sold 27
Not Responsible for Tax Deficiencies 27
Technical Section
Pulp and Paper Industry Literature Review .. 29
Stuff Preparation Developments in 1931 32
Temperature Effects on Equilibrium Between Paper Moisture Content and Humidity 33
The Rate of Moisture Regain in Paper 35
Pulp Testing Committee Report 38
Heat and Power Committee Report 39
Imports of Paper and Paper Stock 42
New York Market Review 46
Miscellaneous Markets 48
Market Quotations 48

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